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MICHIGAN WATER RESOURCES ENFORCEMENT AND INFORMATION SYSTEM

Gary Guenther, et al

Michigan Department of Natural Resources

Prepared for:

Environmental Protection Agency

July 1973

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SELECTED WATER RESOURCES ABSTRACTS
INPUT TRANSACTION FORM

W 74-00701

Michigan Water Resources Enforcement and Information System, (all caps)

Performing Organization Report No.

Guenther, G., Mincavage, D., and F. Morley

EPA Project 16090 FSR

Michigan Water Resources Commission,
Lansing. ~~MI 48926~~

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The project demonstrated an interactive Federal/State water-pollution control, enforcement, and information system, including interactive computer graphics as a method of output presentation.

Two systems were interfaced--Michigan's Water Information System for Enforcement (WISE) and EPA's STORET system. The WISE system is used to alert enforcement personnel to problems through exception reporting, and to provide follow-up information on these problems. STORET is utilized as a storage and retrieval system for water quality and inventory information. As information enters WISE, certain inputs are coded for storage in STORET. The interface mechanism is a common numbering system. Because WISE is modular in design, it can be used in part or in total by other agencies.

The demonstration indicated that careful consideration should be given to the information that will comprise the computer file. Administrative, procedural, and auditing techniques should be completely set down before proceeding with management's commitment to the system. Microfilm should be used when feasible, both as Computer Output Microfilm (COM) and in manual files. (EPA)

*Information retrieval, data storage and retrieval, *data processing water pollution control, monitoring, state jurisdiction, *Michigan, Data collection, Documentation, Information exchange

*Water quality enforcement, exception reporting, computer graphics, *Information systems, STORET system

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July 1973

MICHIGAN WATER RESOURCES
ENFORCEMENT AND INFORMATION SYSTEM

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ABSTRACT

The project was implemented through a Federal grant from the Environmental Protection Agency (EPA) to the Michigan Water Resources Commission, who engaged Ernst & Ernst to conduct it.

The result is a workable interactive Federal/State water-pollution control, enforcement, and information system. The project demonstrated interactive computer graphics as a method of output presentation.

Two systems were interfaced--Michigan's Water Information System for Enforcement (WISE) and EPA's STORET system. The WISE system is used to alert enforcement personnel to problems through exception reporting, and to provide follow-up information on these problems. STORET is utilized as a storage and retrieval system for water quality and inventory information. As information enters WISE, certain inputs are coded for storage in STORET. The interface mechanism is a common numbering system. Because WISE is modular in design, it can be used in part or in total by other agencies.

Careful consideration should be given to the information that will comprise the computer file. Administrative, procedural, and auditing techniques should be completely set down before proceeding with management's commitment to the system. Microfilm should be used when feasible, both as Computer Output Microfilm (COM) and in manual files.

This report was submitted in fulfillment of Project Grant #16090 FSR under the sponsorship of the Office of Research and Development, Environmental Protection Agency.

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SECTION I

CONCLUSIONS

1. The Water Information System for Enforcement (WISE), interfaced with STORET, is a workable system for the storage and retrieval of enforcement, water quality, and inventory information.

2. Interactive computer graphics, a demonstration phase of this project, should be pursued to the operational point and interfaced with both WISE and STORET.

3. The annual operating costs per facility of the WISE system are approximately as follows: key-punching and staff maintenance, $28.25; computer costs, $5.17; equipment rental, $2.25; report distribution, $2.22; microfilming, $0.55; and other costs, $0.71. This is an approximate annual operating cost per facility of $40. The estimated time to maintain each facility is approximately eight man-hours per year.

4. The WISE system was structured to provide a modular design, and is made up of several subsystems that can be removed from the total system when they are not required. For example, if another state does not need the Performance Due Letter module, that module can be readily removed from the total system without affecting the operation of the other modules. Should another state or agency have requirements in addition to those described in WISE, the modular design structure permits additional modules to be interfaced with the WISE structure. Therefore, the modular design of the WISE system readily allows a small or large agency to use the system according to its own capability and desire.

5. Very careful consideration should be given to the items of data which will be taken from manual files and placed in two computer files. Definite, exact, demonstrative, and procedural controls, including methods for auditing the master file, should be established prior to initiating any data input to the system.

6. It is essential that the user agency's staff at all levels have the proper training. Upper management should be familiar with the system and support it. Regular training sessions are necessary for clerical and other personnel who will be involved with direct input to the system.

7. It was found that STORET storage should be done by punched cards through the EPA Regional Office, and that STORET retrievals should be made over a low-speed terminal.

8. Microfilm should be extensively used for manual files and computer output, for reduced costs, and for ease of retrievals from the system.

SECTION II

RECOMMENDATIONS

The following recommendations are based on the review of the actual system in operation over a period of several months, and on the results of several individual analyses to develop improved procedural controls.

It is recommended that future users of this system design a common data base of water resource information within the system that is sufficiently generalized to be used by multiple agencies. The system should be developed to utilize compatible coding structures that interface with the Federal government's STORET water management information system. The ease with which information can be assembled for input, stored in the system, and retrieved in the required report formats leaves no more effective alternative than duplicating the entire computer system. Duplication of the programs was not considered necessary since STORET is functioning effectively.

A new system should be responsive to user needs, flexible, and easy to operate. It must provide easily understood reports and immediate access to information from various remote locations. On-line remote access to the STORET and WISE data bases is recommended because of the requirement to review an organization's record as field activities dictate. To simplify the collection of water quality management data, the user should establish a pattern of uniform terminology and data classification codes. The water quality data base and enforcement system should permit the user to measure performance.

As a new system is updated and modified, design considerations should include data processing equipment and techniques. Users should also ensure that a new system can continue to serve as a basis for program planning and evaluation of progress.

The system should be designed and modified to permit the constant efficient handling of a large volume of data. Although the present input volume of the Michigan Water Resources Commission is not large enough to require an optical character reader, it is recommended that the OCR be considered if volume increases. Until that time it is recommended that the Commission continue to use computer-prepared documents for the Monthly Operating Report and expand their use to include laboratory documents.

Microfilm jackets are recommended to users as a means of retaining an accurate enforcement file with the capability to print copies.

It is highly recommended that future users utilize interactive computer graphics. This is an extremely effective method of demonstrating a comparative representation of pollution activity throughout a state. The objective is to provide a flexible means of communicating variable and complex information in an illustrated format. Through the use of computer graphics, the information for maps, charts, and trends can be presented on a simplified and timely basis.

SECTION III

A DESCRIPTION OF THE SYSTEM

Recently, the Michigan system for enforcement and inventory data was manually processed and was rapidly becoming obsolete. The increased activities of Federal, state, local, and private groups for the measurement and control of water pollution produced large quantities of data. Such data was often duplicated, poorly coordinated, and ineffectively used, because manual control is too slow and cumbersome. The need for more efficient data handling became obvious with the increased volume of activities. Because there were not sufficient staff to review, analyze, and take appropriate action, and because the Michigan Water Resources Commission (MWRC) was not financially able to implement a large-scale data processing facility, a system was designed, developed and implemented which utilized existing programs and computer facilities available through the Federal EPA-STORET system as well as supplemental computer capabilities furnished on a local time-sharing system.

Time-sharing allows many different and independent operators to use one central computer at the same time. This permits maximum utilization of a computer through inexpensive remote terminals, and the central computer cost is shared by all users. This type of system does not require the users to maintain a large operating and maintenance staff, and gives excellent flexibility for changing equipment to keep pace in this rapidly expanding field. The Michigan system for enforcement and inventory data has made use of the central state computer facility located in the State Highway Department. Computer usage is charged on the basis of time used, with no fixed cost if the computer is not used. This reduced the cost during implementation to a minimum. As phases of the program were implemented, minimal costs were absorbed based on limited computer usage.

The computer programs for the implementation of this system were written in a universal language (COBOL). The result is a package system available to states or other potential users who do not have a computerized water management system.

Michigan's area is approximately 40% water surface, and the State is surrounded on three sides by the Great Lakes. Its fresh water resource is shared directly with seven other states and Canada, and indirectly with millions who come to use it. Cooperative management of this resource is needed and must start with the basic data which describes it.

A common data system useful to all, yet adaptable to individual needs, was needed to serve Michigan's multiple interests. Resource management includes more than a measurement of quantity and quality characteristics. Enforceable regulations are also required, and continuous follow-up is necessary. In addition, each state or Federal organization involved in this process is faced with inventory requirements. Thus, a general purpose computer system has been developed and implemented which combines three systems: 1) the storage of quality and quantity data in STORET, 2) the storage of State inventory data, and 3) the utilization of the above

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data in an enforcement information system called WISE (Water Information System - Enforcement). The utility of the system is such that it can serve multiple agency requirements and thus, eliminate duplication.

The common data system permits the user to locate and identify information sources, whether they are water intake, enforcement districts, or political bodies, by a geo-political method. The system utilizes the basic STORET station identifiers:

- Primary station number
- River mile index system
- Latitude and longitude
- Political code plus a modification for state enforcement districts

All stations will receive as many of these four as apply. This permits any information which is developed for WISE to be input to the STORET system, and will allow full utilization of STORET. These station identities can be established by using a computer and digital graphics technique. Once the information source identifier (label) has been established, the user may input a variety of information under that label. The Michigan program currently accepts the following main information items:

- Operating reports for organizations concerning quality and quantity of effluent or intake
- Reports of staff visits
- Reports of staff surveys at which quality and quantity data were collected
- Reports of property tax exemption status for pollution control devices
- Reports of annual performance rating (given to each organization in the State on an annual basis)
- Report of all Commission actions concerning hearings and orders
- Reports of performance due, such as date of start of construction
- Reports of judicial action, such as filing of briefs

The WISE data processing system utilizes batch and on-line processing techniques to maintain the master file and prepare the various management and operating reports. In addition, the system is designed to provide on-line retrieval of data through remote terminals.

The master file retains data on enforcement follow-up and water pollutant parameters by which the effectiveness of an organization's waste water control program is measured. This file is the main body of information retained by the system.

The processing of data within the system is performed in a monthly cycle with data retrievals processed on demand. The monthly processing proceeds through the following steps:

- There are two main sources of input: (1) The Performance and Action Report input forms (Exhibits 30 to 33 and 59 to 70) are filled out by MWRC personnel, and may be used to set up a new station, record a field visit, or indicate survey data. (2) The Monthly Operating Report (Exhibit 18) contains outfall parameter values taken and recorded by a station's Certified Operator on a daily basis and submitted to the MWRC on a monthly basis.

- The system receives the above information and stores it in a data base (one common all-purpose file). The system provides for the proper processing of information. It compares operating reports to preprogram standards, and prints all organizations not meeting standards or not submitting reports as ordered. It also allows remote access for instantaneous retrieval of this data to locations throughout the State.

In making information retrievals from the WISE system by remote terminal, connect times will vary considerably depending on the complexity of the retrieval, the load on the system, the type of system, the size of the master file, and other factors. The investigating agency's experience, using the computer configuration described in this report with tapes, was that a retrieval of one record by station number took about 15 minutes. It is recommended that if remote retrieval capability is essential, random access disk capability should be investigated. By utilizing direct access disk storage in the system, as demonstrated by the investigating agency, the connect time would be shortened, if other factors remain the same.

Two methods of STORET retrieval were used to compare the time elapsed in obtaining data. One method consisted of using a low-speed terminal (LST) to initiate the data retrieval, having the hard copy printed at the computer center, and having this mailed to the user. The second method was to punch a deck of retrieval cards and mail them to the EPA Regional Office. EPA personnel used the card deck to initiate the retrieval. The data was printed on the Regional Office printer, and the hard copy was mailed to the user. Five retrievals were made using both methods. The following results of the experiment demonstrate that the use of an LST and direct mail from the computer center saves a considerable amount of time.

Retrieval No.	Date Initiated	Days Elapsed with LST	Days Elapsed with Cards
1	1-14-72	4	18
2	1-18-72	3	14
3	1-19-72	5	13
4	1-20-72	3	12
5	1-21-72	3	11

As the system was implemented, the large volume of data processed resulted in a cumbersome presentation of pollution activities, despite the fact that exception-reporting was being used. It was decided that the reporting system would be enhanced if technical information were presented in a more understandable graphic format, which would permit quick response to pollution problems. It was also desired that the system measure and forecast water quality trends. Computer graphics offered the possibility of presenting this large volume of information in a form that emphasized:

- Target and trends: projected, past, and current
- Comparative analysis of these trends
- Geographical presentation of the problems

Through the use of a visual display graphics terminal on a time-sharing computer system, the program enables one to display on a map of arbitrary scale the locations of water quality and industrial/municipal effluent monitoring stations within any river basin in the State. The Huron River Basin has been used as an example for this demonstration program. The geographic data base consists of coastline coordinates, county line locations, and center line coordinates for the State's major rivers. For the Huron Basin, details such as riverbank contours, streams, and municipal boundaries are included. Station data fall into two major categories: water quality and industrial/municipal effluent. The program allows the user to select any station, either by name or by locating it geographically, and interrogate a data file for information about that station. This interrogation can take two basic forms, narrative and graphical, depending upon the type of station selected.

A newly-developed computer graphics program was demonstrated to the MWRC. The purpose of its development was to demonstrate the feasibility of displaying on a geographic background the location and nature of certain occurrences which are important to the control of water resource quality. The original project was enhanced by extending the capability of computer use. This was accomplished by retrieving stored data and converting it into the form of a graphical display shown on a remote terminal device.

This technique enables Commission members to see maps, charts, and trends on a timely basis, and immediately grasp the overall results of actions by multiple agencies with water resource responsibility.

In brief, the computer graphics program permits a user to see patterns of water quality degradation and pollution violations against a geographic background, and to immediately discern relationships which might otherwise be impossible, or at best, time-consuming to discover.

Through the implementation of the WISE system and its interface with the Federal STORET system, the enforcement capabilities of the Michigan Water Resources Commission have been improved. The functions and favorable results of certain system capabilities are described here.

Through its exception-reporting principle, the program module which provides a performance analysis report (PAR) has enabled enforcement personnel to concentrate on problem areas, rather than manually review all information on all facilities. In accordance with legislation requiring Certified Industrial Waste Treatment Operators and effluent quality reporting, PAR has provided automatic computer review of the monthly summaries from effluent quality reports. Thus, reports need not be reviewed manually. Staff members can review their own performance of "visiting organizations at least every 12 months," because organizations not visited in the previous 12 months are printed on the exception report.

Combined with another program module, PAR has enabled enforcement staff to handle performance due more rapidly. One month in advance, the program module named TICKLE generates a letter to be sent to organizations with performance due. Organizations that are behind in performance due dates are printed on the exception report, and thus, enforcement staff can follow up on organizations not meeting their waste water control responsibility.

The program module named HAIR is utilized to obtain enforcement follow-up data and to disseminate data to other agencies and the public. The 64 hierarchies in which data can be sorted and retrieved allow many various distributions of the data base. This information has many uses to the enforcement staff and others, and the computer sorts eliminate manual searches of large amounts of data.

The program module named INFORM, which prints the Monthly Operating Reports, and the program module named LABEL, which prints mailing labels, have freed the staff from much typing, and permit a more timely distribution of forms.

In general, the WISE system has focused staff attention on certain key information, and has improved enforcement capabilities by eliminating the need to review an organization's entire manual file.

DATA BASE DESCRIPTIONS

Geographic Data

Geographic data is in the form of absolute longitudes and latitudes. Shoreline data for the State of Michigan was obtained from a tape provided by the U. S. Geological Survey, while interior details, such as county and municipal boundaries, river course descriptions, and basin details were obtained by digitizing appropriate maps. Since absolute coordinates have been used throughout, all data is compatible and can be arbitrarily scaled by the main program. Furthermore, the display organization and underlying algorithms of the program are general enough to be used with any geographic data base which is organized in the manner described above.

Water Quality Data

For this demonstration, a special file was prepared by MWRC staff which provides information on 23 water quality stations in the Huron Basin. This file includes the primary station number for each station (county number plus 4-digit sequence number), the absolute latitude and longitude, and the data on flow, temperature, and the concentrations of chloride, DO, and BOD for a twelve-month period. This information is selectively extracted by the program and, at the user's option, displayed in a variety of ways.

Industrial/Municipal Outfall Data

The entire contents of the MWRC master file for one month for the Huron Basin was provided for the demonstration program. This file was transferred from magnetic tape to a direct access storage device for use by the program. Through the facilities of the main program, a unique logical connection can be made between a selected station and a location in the file, giving the user access to all the data that exists there for that outfall. For purposes of this demonstration, only certain selected items of data can be displayed, but this was an arbitrary choice.

PROGRAM DESCRIPTION

Cartographic Display

The user's primary orientation to the geographic data base is through the reference map, shown in Exhibit 1. This is a large-scale map of the State of Michigan, showing county boundaries and the mean courses of major rivers in the lower peninsula. Whether or not to display county boundaries is the user's option; he can suppress them if he wishes. Using this map as the initial reference, the user has several inquiry options available. He can request that selected portions of the map be expanded in order to examine certain regions in more detail than is possible with the large scale map. The resultant expanded area can be displayed in either the inset mode (Exhibit 2) or the full-screen mode, shown in Exhibit 3. The advantage of the inset mode is that the expanded area is shown in reference to the large-scale map and is useful for initial exploration of regions of interest. A scale of miles (or feet, if appropriate) accompanies each expansion in order to give some feeling for the size of the area being examined. The full-screen mode, of course, provides greater magnification and is the mode most often used during the data retrieval process.

Detailed inquiry is accomplished by outlining an area of the map and requesting the desired mode of expansion. The degree of magnification is a function of the size of the area specified by the user, so that area expansion may be accomplished in several steps, or by requesting it immediately. Once the desired area has been outlined by the user, a windowing algorithm in the program discards all parts of the map which fall outside of the requested area. The degree of magnification which can be obtained is theoretically unlimited; only the completeness of the geographic data base determines how far one can practically go.

When the user requests it, the program will display the location of all effluent monitoring stations within a given basin. The small triangles in Exhibit 4 show the locations of such stations in the Huron Basin, 144 in all. Once these locations have been displayed, the user can once again zoom in on a portion of the basin in order to isolate or better resolve the location of stations. At this point, he is in a position to request information about these stations, which he does by enclosing several stations in a rectangle, and entering a code which signifies a request for data. This procedure will be amplified later in the report.

EXHIBIT 1 **REFERENCE MAP OF MICHIGAN**

EXHIBIT 2 EXAMPLE OF INSET BLOW-UP

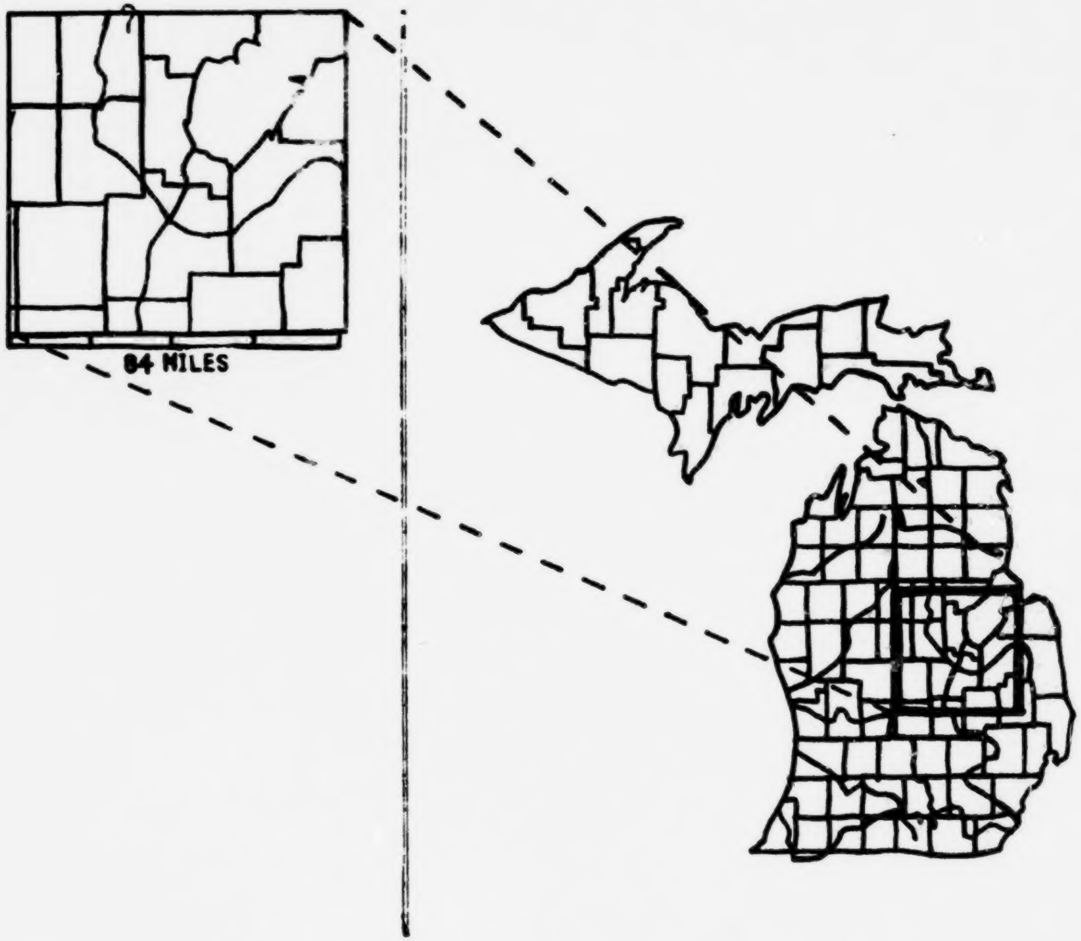


EXHIBIT 3 EXAMPL OF FULL-SCREEN BLOW-UP

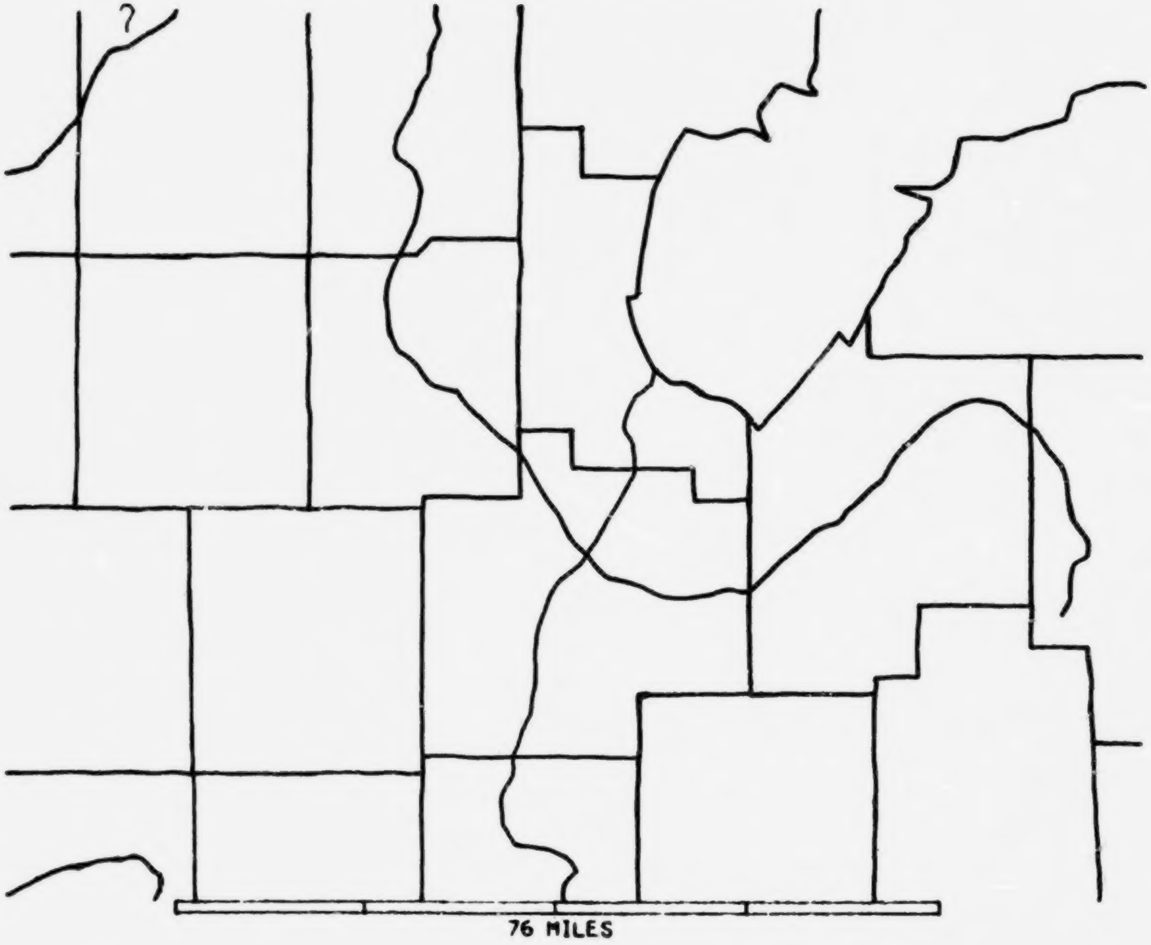
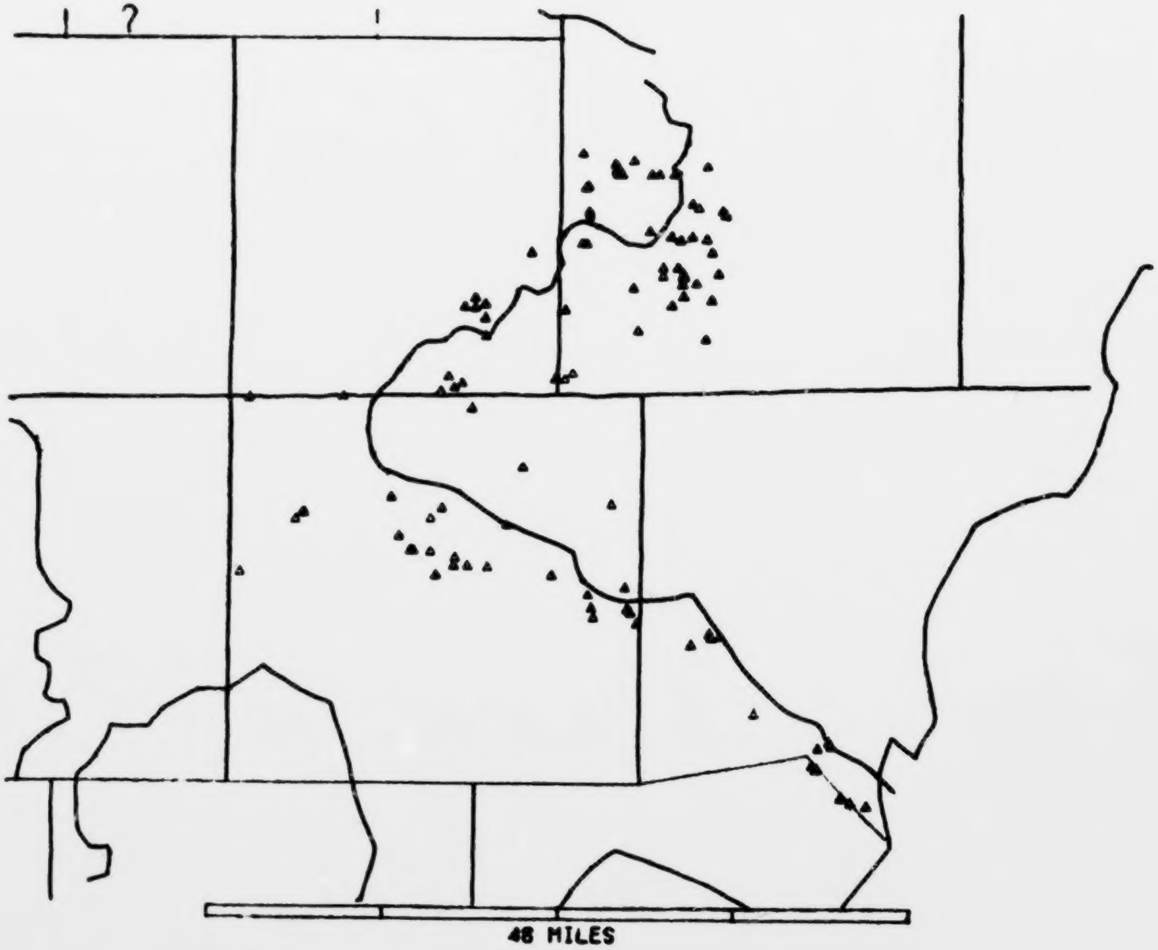


EXHIBIT 4 HURON BASIN MAP SHOWING EFFLUENT STATION



There are additional features available to the user in the cartographic display portion of the program. When the degree of magnification becomes great enough, it is appropriate to display more detail than is evident in, say Exhibit 4. Such detail is normally suppressed in the interest of efficiency and speed, but when the user requests it, he can obtain the sort of geographic detail which is evident in Exhibit 5. Here, riverbank contours, creek outlines, and major municipal boundaries are shown. When portions of this map are expanded, the greater interior detail provides geographic reference points, even for amplification down to several hundred feet full-scale.

Another feature of the program allows the user to request a map display in the environment of specified outfalls. That is, he can request by name that the location of all outfalls belonging to Company X be displayed cartographically. Since the data base described previously contains outfall names and addresses, the file can be searched according to that attribute, and the corresponding latitude-longitude and terminal stream descriptor can be retrieved for each file entry which satisfies the name request. The program selects the geographic data for the appropriate basin, displays that portion of the basin or basins which contain the requested outfalls, and marks the stations with a special symbol, a star in this case. Exhibit 6 shows the map resulting from a request to display all outfalls belonging to a large company in the Huron Basin. There are a total of six such outfalls, but on the scale shown in Exhibit 6, the five stations in the Walled Lake area (northeast part of the Basin) all appear to coincide. Incidentally, even if they do coincide, they can be distinguished by their unique primary station number.

Finally, one can request that the location of all water quality stations in a given basin be displayed. Exhibit 7 shows square symbols denoted by the location of 23 water quality stations in the Huron Basin.

DATA RETRIEVAL

Industrial/Municipal Stations

Once the outfall locations have been displayed (Exhibit 4) the user can retrieve certain data about any of the stations shown. As stated earlier, he simply outlines a group of stations and enters the interrogate mode. The program assigns identifier tags to the selected stations, with which the user can refer to individual outfalls. A sub-menu of commands then becomes available to the user with which he can ask for the following:

- Primary station number, outfall's division name, mailing address, and responsible officer
- Parent corporation name and address, responsible officer and organization name for Monthly Operating Report
- Outfall name for monthly report and any outfall orders and their corresponding dates
- Names of all parameters monitored at the selected outfall

Again, these data have been arbitrarily selected; in principle, any portion of the file could be accessed. Exhibits 8 and 9 show the displays resulting from a retrieval of data on outfalls.

EXHIBIT 5 HURON BASIN MAP SHOWING GEOGRAPHIC DETAIL

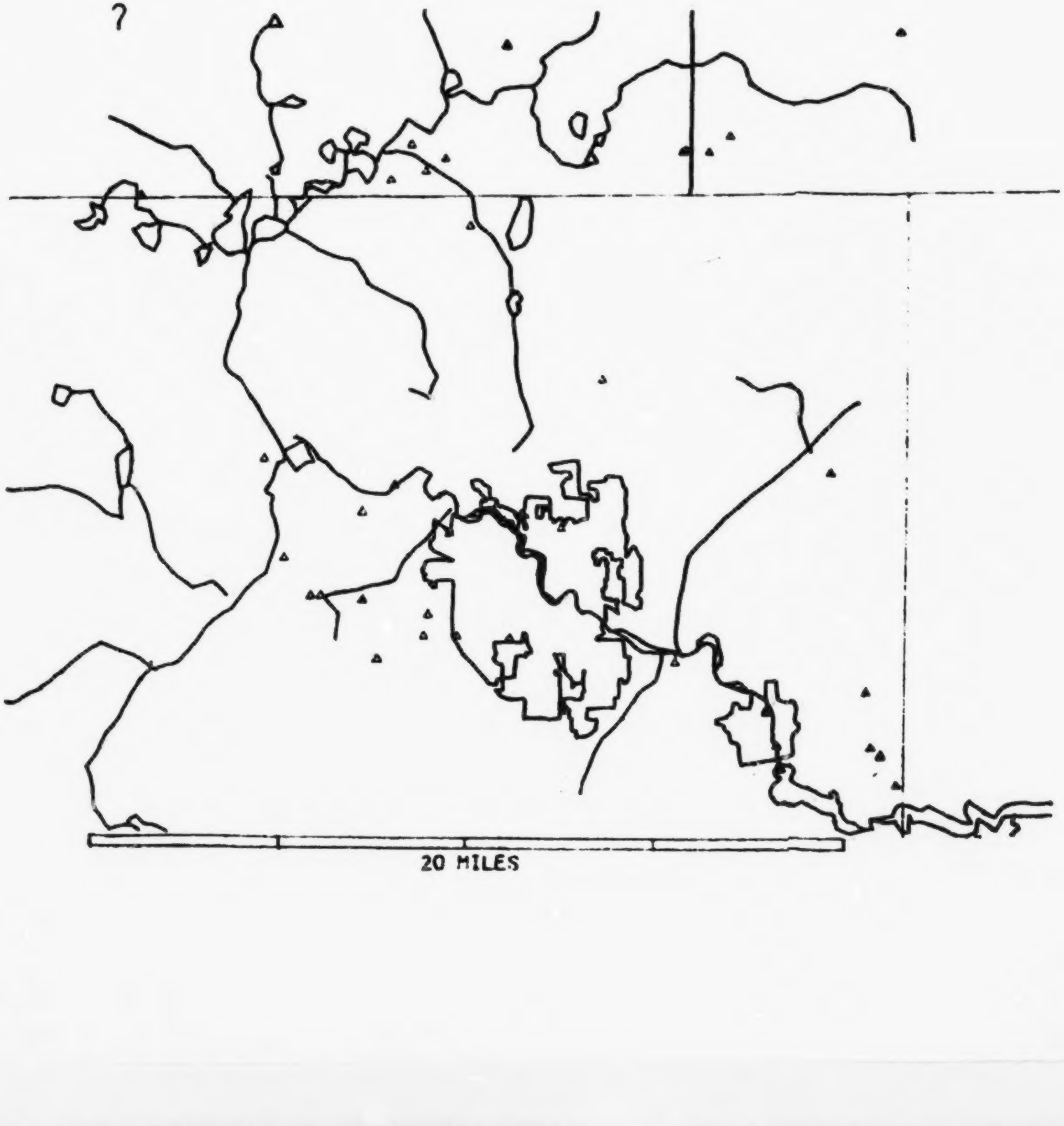


EXHIBIT 6 MAP SHOWING LOCATION OF ONE COMPANY'S OUTFALLS

?

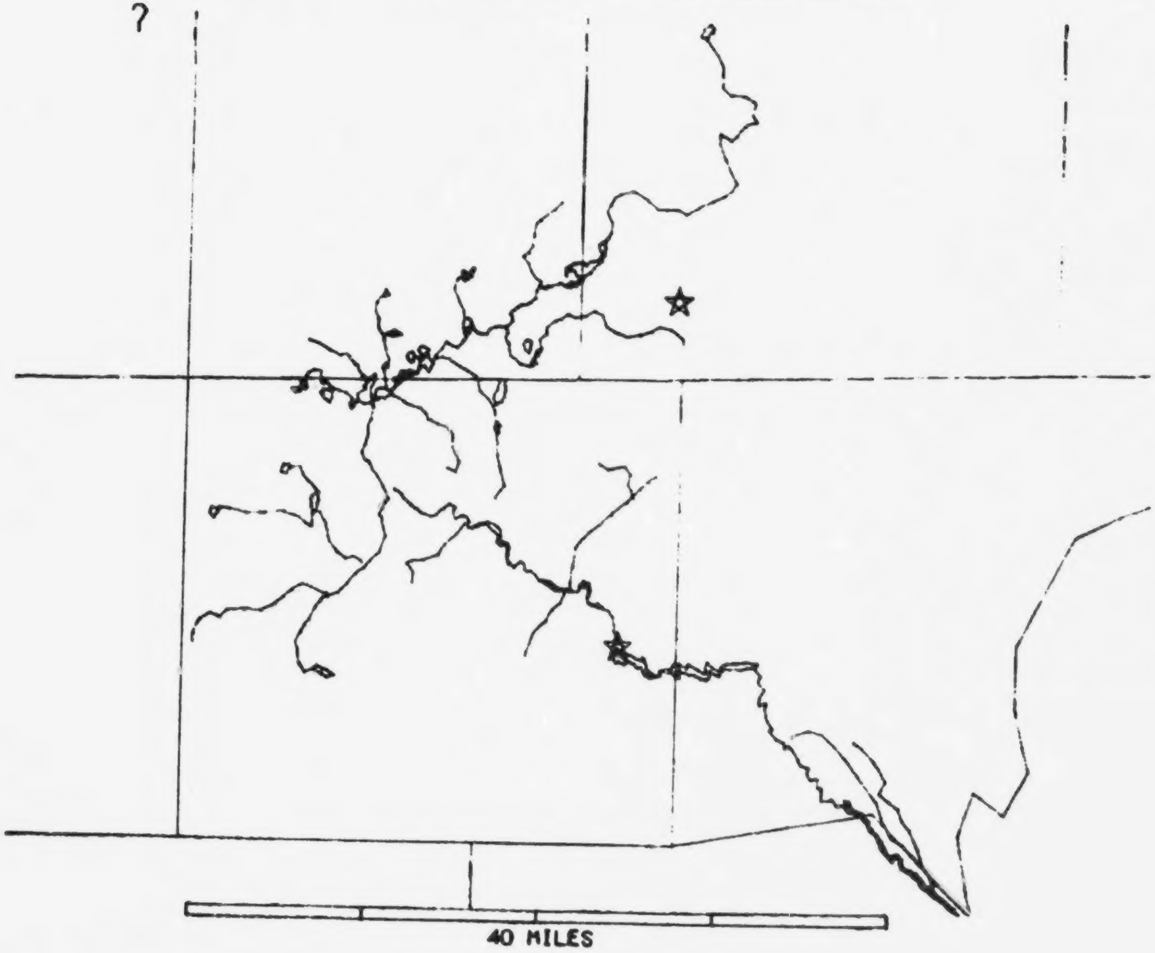


EXHIBIT 7 MAP SHOWING LOCATION OF WATER QUALITY STATION

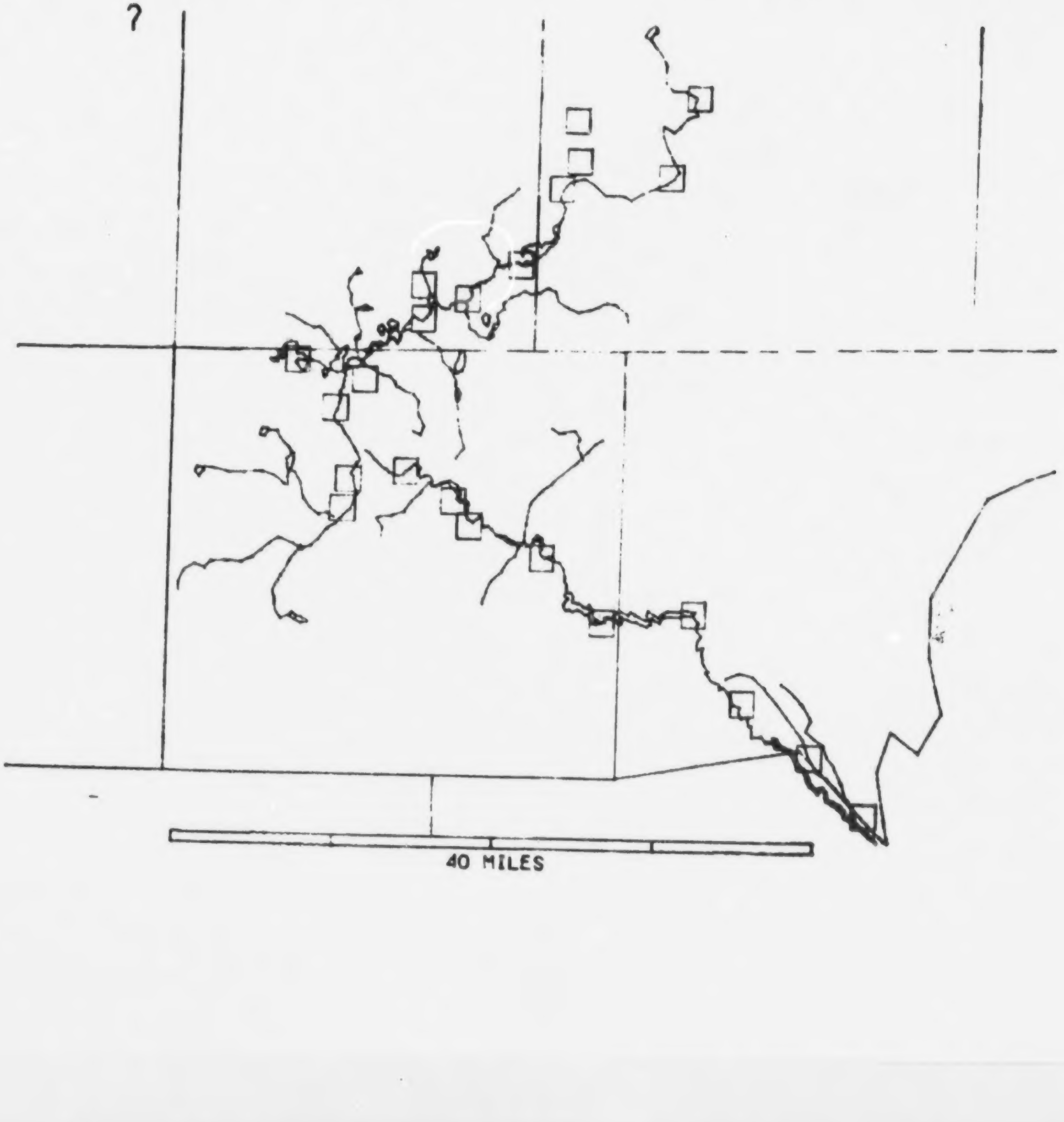
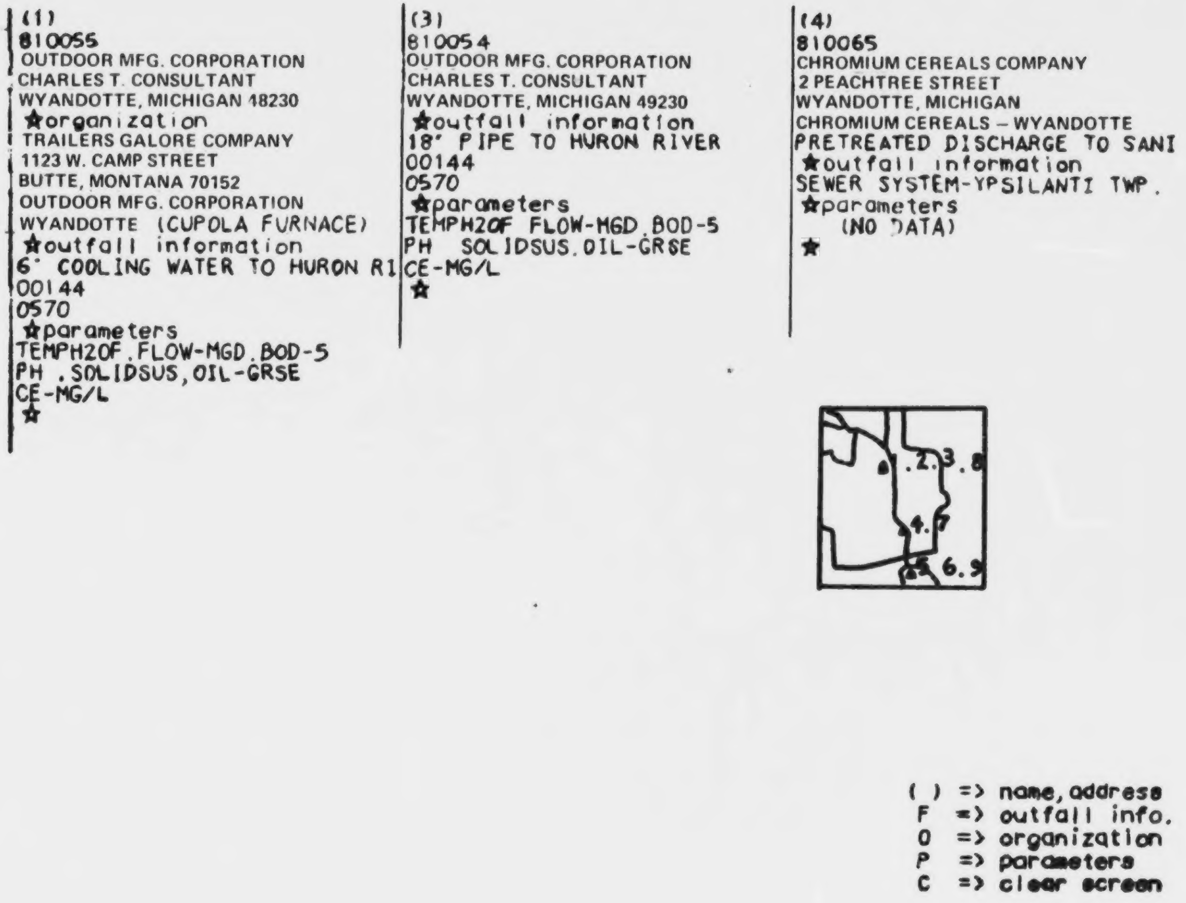


EXHIBIT 8 INFORMATION ABOUT ORGANIZATION QUERIED



```
(1)
810055
OUTDOOR MFG. CORPORATION
CHARLES T. CONSULTANT
WYANDOTTE, MICHIGAN 48230
 ☆organization
TRAILERS GALORE COMPANY
1123 W. CAMP STREET
BUTTE, MONTANA 70152
OUTDOOR MFG. CORPORATION
WYANDOTTE (CUPOLA FURNACE)
 ☆outfall information
6" COOLING WATER TO HURON R1
00144
0570
 ☆parameters
TEMPH2OF.FLOW-MGD.BOD-5
PH .SOLIDSUS,OIL-GRSE
CE-MG/L
 ☆
```

```
(3)
810054
OUTDOOR MFG. CORPORATION
CHARLES T. CONSULTANT
WYANDOTTE, MICHIGAN 49230
 ☆outfall information
18" PIPE TO HURON RIVER
00144
0570
 ☆parameters
TEMPH2OF FLOW-MGD.BOD-5
PH  SOLIDSUS.OIL-GRSE
CE-MG/L
 ☆
```

```
(4)
810065
CHROMIUM CEREALS COMPANY
2 PEACHTREE STREET
WYANDOTTE, MICHIGAN
CHROMIUM CEREALS – WYANDOTTE
PRETREATED DISCHARGE TO SANI
 ★outfall information
SEWER SYSTEM-YPSILANTI TWP.
 ☆parameters
   (NO DATA)
 ★
```

```
( ) => name,address
 F  => outfall info.
 O  => organization
 P  => parameters
 C  => clear screen
```

EXHIBIT 9 INFORMATION PLACED IN REPORT FORMAT

MONTHLY PERFORMANCE-OPERATING REPORT

STATION				ORGANIZATION NAME				OPERAT. REPORTS		DATE OF FIELD AC		ANNUAL RATINGS LAST 3 YEARS			
				STORET PARAMETER				LAST 12 STORPTS		SURV VIS		TAX EXEMPT.			
NUMBER	YR. ASSD	S.I.C CODE	PER	NUMBER	NAME	ACTUAL AVERAGE	VALUE LIMIT	+	SUB	MOYR	MOYR	[illegible]	[illegible]	[illegible]	[illegible]
820001	60	342	-	OUTDOOR MANUFACTURING COMPANY						1268	0269	R	A	B	E
				OUTFALL NO.2											
					OIL	15MG./L		11	11						

Water Quality Stations

Data on water quality is obtained in a graphical, rather than a narrative form. There are two forms of graphical display available to the user. One form involves conventional scientific graphs, while the second is a new type of display, developed specifically for this project. This is referred to in the program as the "aerial mode," and involves a perspective display of selected reaches of a river, as they would appear if one were in an aircraft looking along the river. Superimposed on this aerial view are vertical lines which rise from the ground at water quality station locations and whose heights are proportional to the magnitude of their parameter measurements. The user can select any basin, or any stretch of that basin and show for a specified month how any chosen parameter varies along the entire reach of the river. The user can even choose a vantage altitude above the river to optimize the information content of the display. The great advantage of this type of presentation lies in its ability to convey a large amount of information at one time. One sees immediately how a water quality measurement varies along the length of river miles, but at the same time, the relationship of station locations to geographic features, like municipalities and tributaries, is clearly evident. Examples of this type of display are shown in Exhibits 10 and 11.

After obtaining an overview of water quality with an aerial mode display, one can proceed to the scientific graph mode, where greater detail on parameter data can be obtained. This mode is entered from a cartographic display, after a request that the location of water quality stations be shown. One outlines on the map a group of stations for which data is to be retrieved. At this point, a request for scientific graphs causes the program to assign identifier flags to the stations and prompt the user for the station and parameter he wishes to see presented. A dynamically scaled graph of that parameter variation throughout the year is displayed, as well as a sub-menu of further display options that the user can invoke. For example, he can overlay the measurements obtained at other stations on the same grid, he can insert labels or remarks on the graph, or he can request that the entire graph be saved in a direct access file for viewing at a subsequent time. An example of this type of graph is shown in Exhibit 12.

DISPLAY EQUIPMENT AND FACILITIES

Time-Sharing Facility

The demonstration computer program has been developed and operated on the University of Michigan's IBM 360/67 time-sharing system. The program and data bases reside in disk file devices which can be accessed from any telephone line. In order to be able to operate at a high-data rate, a special modem has been used, which allows data to be transmitted to the terminal at the rate of 120 characters per second. Such a modem (modulator-demodulator) typically costs $1,000. A picture is shown in Exhibit 13.

EXHIBIT 10 AERIAL VIEW – UPPER REACH

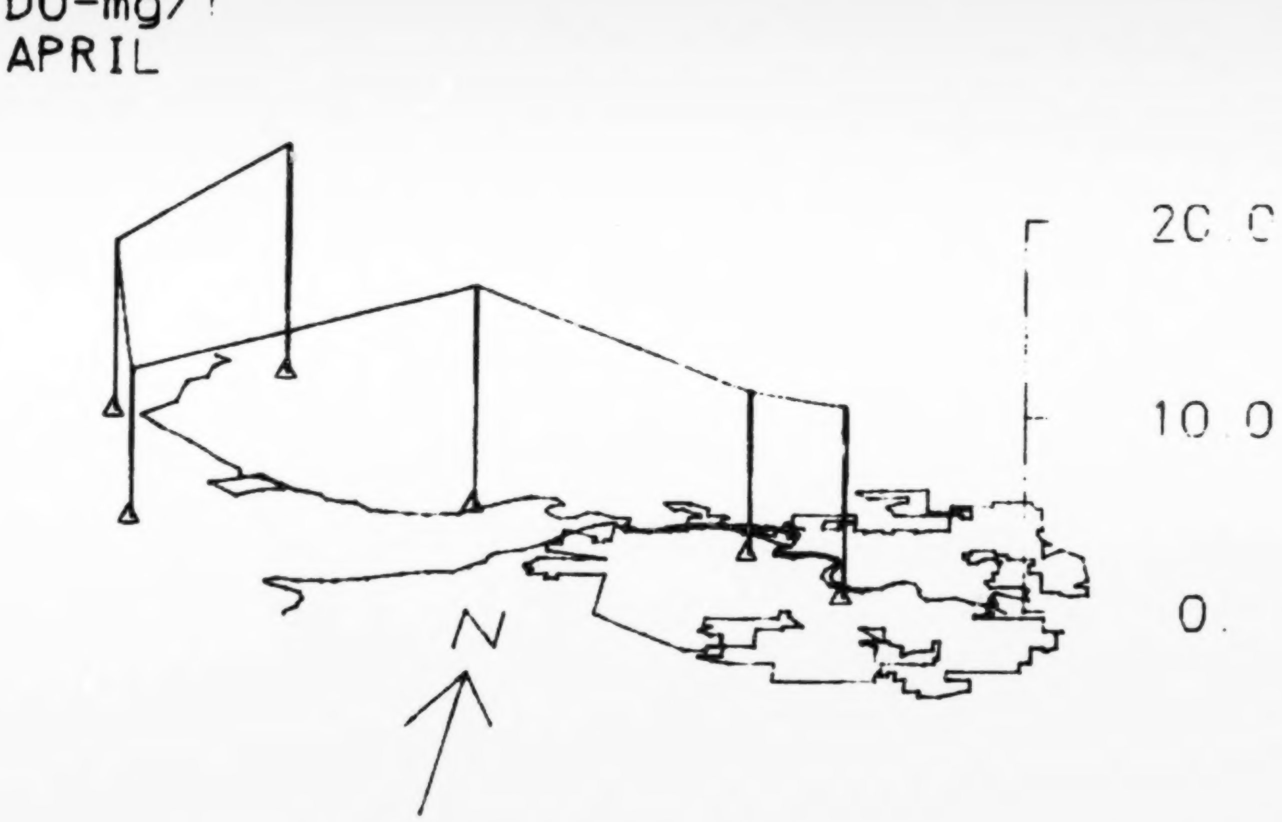

DO-mg/l
APRIL
20.0
10.0
0.
N

EXHIBIT 11 AERIAL VIEW – MIDDLE REACH

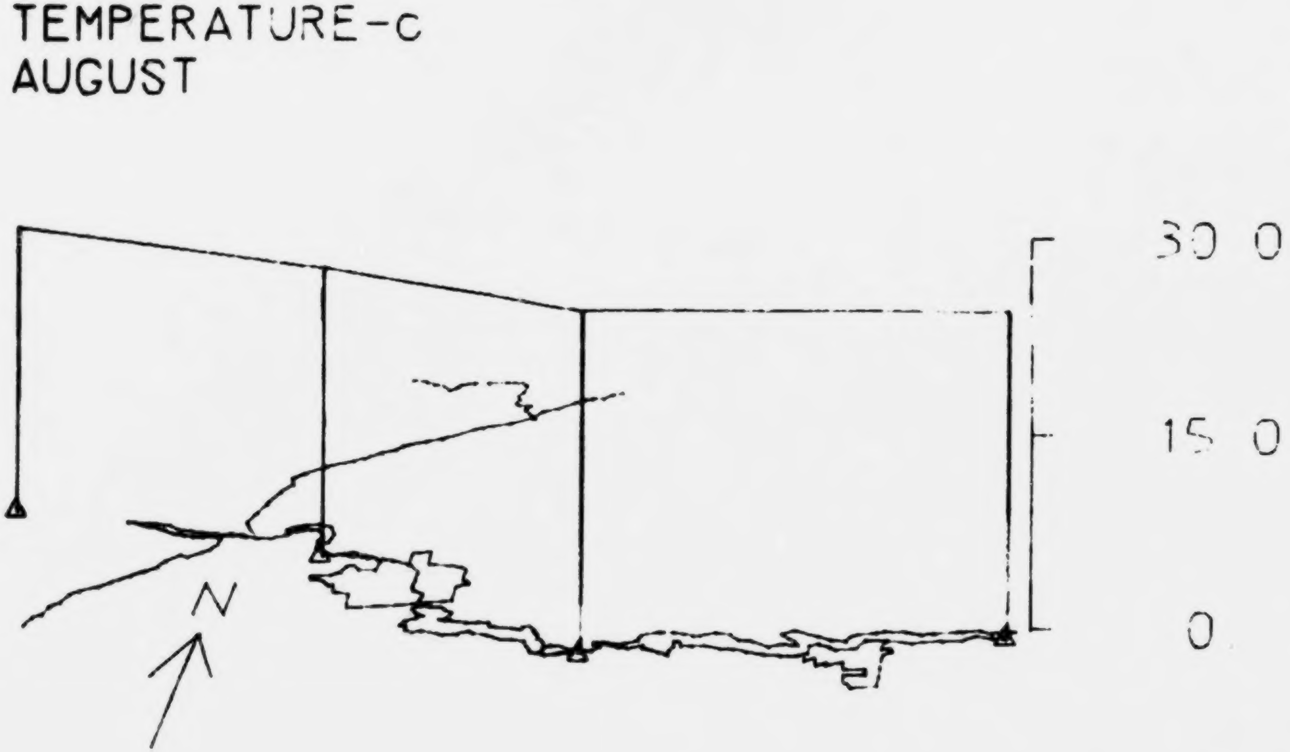


EXHIBIT 12 SCIENTIFIC GRAPH OF ANNUAL PARAMETER VARIATION

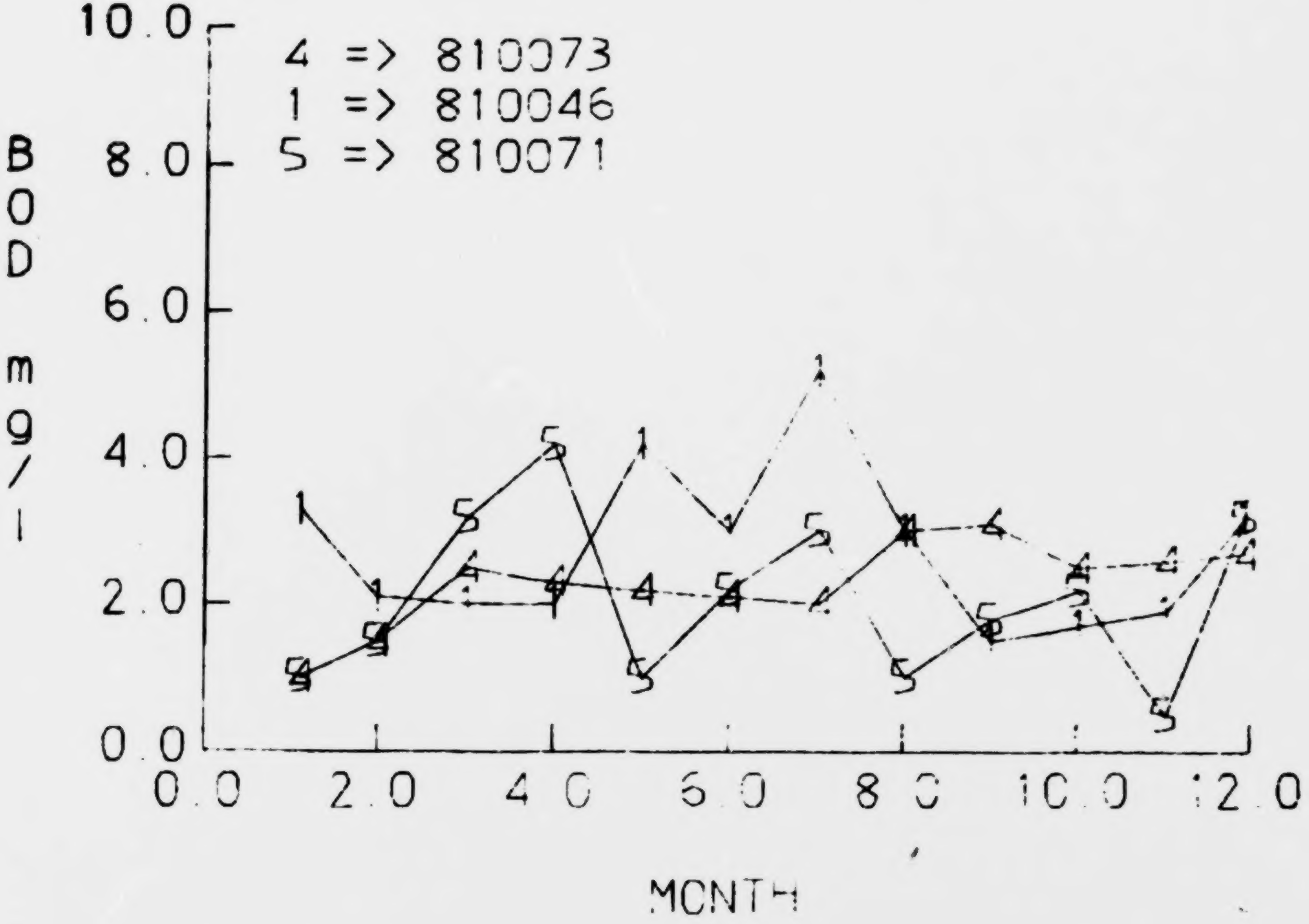
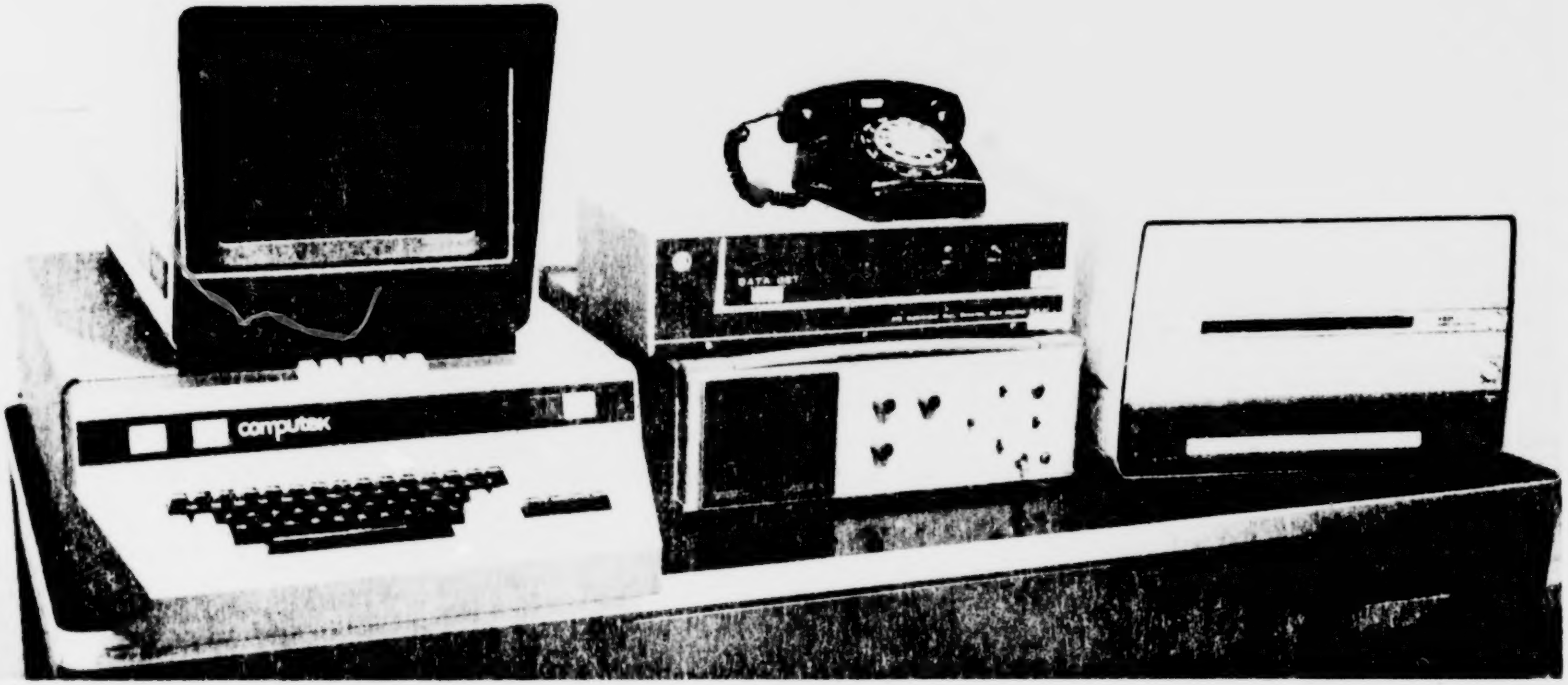


EXHIBIT 13 DISPLAY – COPY GRAPHICS EQUIPMENT


computek
DATA SET

Display Terminal

The display device which has been used in the demonstration project is a direct-view storage tube CRT terminal. There are several such terminals on the market that are relatively inexpensive, and have no local computing power, i.e., they are passive display devices. Specifically, for this project a Computek 400/20 terminal has been used, which has a nominal cost of $10,000. Recently, both Computek and Tektronix, Inc. have announced the availability of terminals with comparable characteristics with costs of about $4,000. The interactive display program could be operated from such low-cost terminals.

Hard Copy Device

Any visual display terminal can be equipped with a hard copy unit which allows the user to copy the contents of the screen to obtain permanent records of the session. The Tektronix 4601 has been used in this project, and costs roughly $4,000. Within eight seconds, a dry, ready-to-use copy can be obtained at a cost of about seven cents.

Scan Convertor

When an interactive terminal session is to be viewed by a large group of people, i.e., more than three or four, the screen of the display terminal is too small to permit everyone to see what is being plotted. For about $2,500 one can obtain a Tektronix 4501 scan convertor which attaches to the terminal and converts the screen's contents to a standard video format. The video signal can be sent to a group of monitors or a large screen projector, permitting hundreds of people, if necessary, to view the program evolution.

A block diagram showing the hardware/software system components can be found in Exhibit 14.

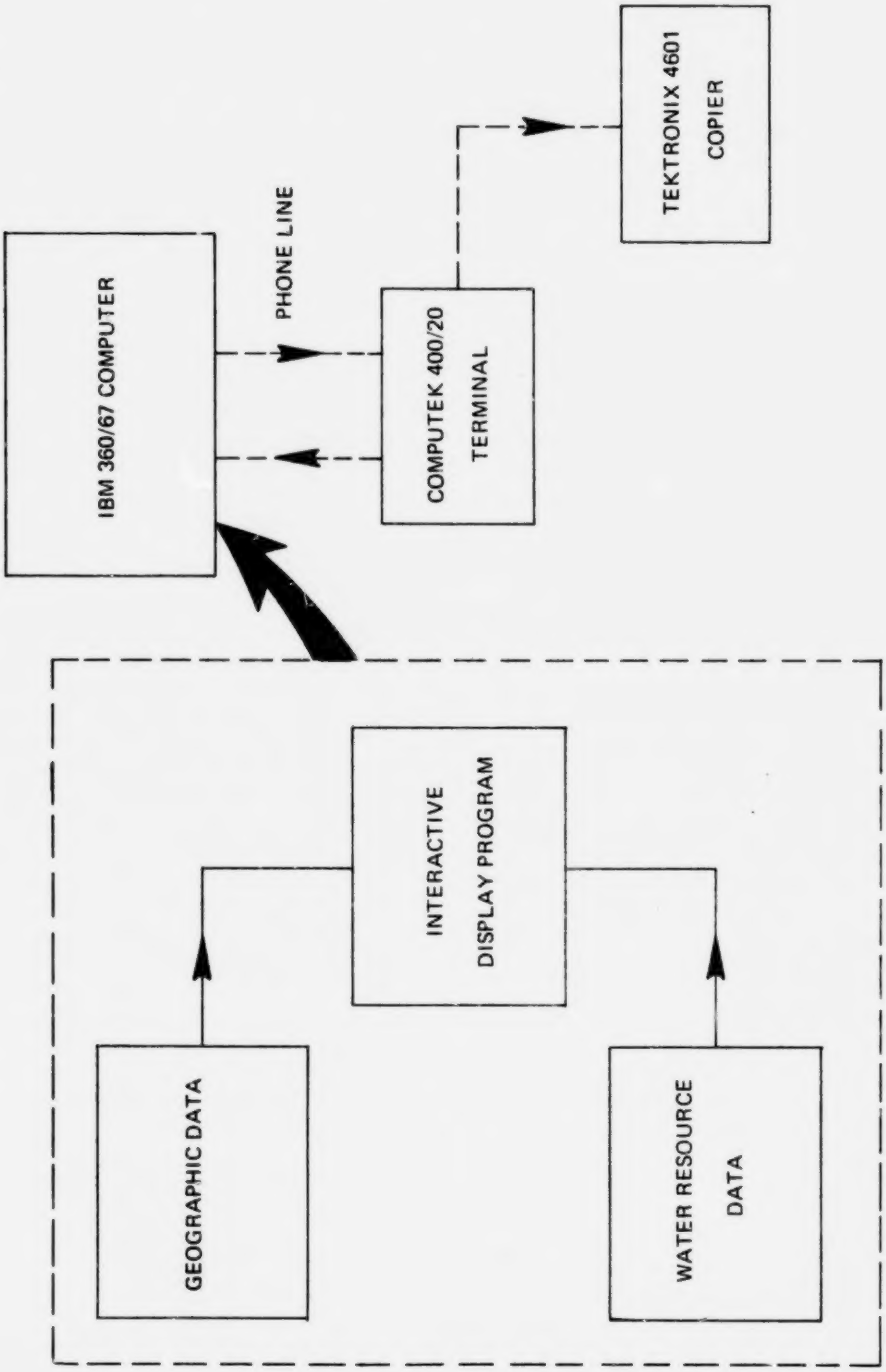
COMPUTER CONFIGURATION

The WISE system is processed on a Burroughs model B5500 computer operated by the Michigan State Highway Department. Several factors entered into the decision to utilize this computer:

- The B5500 computer capacity was large enough to handle the data base and programs planned.
- The B5500 software provided the sophistication required for batch and telecommunication processing.
- The particular installation had available time to handle the WISE processing requirements.
- The cost per operational hour and per disk storage segment used represented the lowest cost for a computer of this size, configuration, and capability.
- The installation was physically very close to the MWRC staff offices, providing an excellent turnaround and scheduling capability.

EXHIBIT 14

BLOCK DIAGRAM OF SYSTEM


IBM 360/67 COMPUTER
PHONE LINE
COMPUTEK 400/20 TERMINAL
TEKTRONIX 4601 COPIER
INTERACTIVE DISPLAY PROGRAM
GEOGRAPHIC DATA
WATER RESOURCE DATA

The configuration of the B5500 computer used was:

1 - Burroughs B5500 processor
8 - Memory modules (4,096 words/module)
3 - Input/output channels
2 - Disk electronic units
9 - Disk modules (9.6 million characters per module)
6 - Magnetic tape drives
1 - Card reader
1 - Card punch
1 - Data communications control unit
7 - Data communications line adapters
2 - High-speed printers
1 - Supervisory printer

ESTIMATED DIRECT COSTS - INITIAL MASTER FILE SETUP

Prior to beginning the setup of the master file, a thorough investigation of data sources should be made. All data that will be put into the master file should be readily available. Generally, the data will be contained in an existing manual file system or will be available from enforcement personnel. After exhausting these sources, additional information can be obtained from the industry, municipality, or commercial enterprise. The investigating agency, for example, mailed questionnaires to organizations to obtain additional data pertaining to the exact geographical location of outfalls and intakes. After exploiting these sources, actual on-site inspection by staff personnel will be necessary, where information is still lacking.

It is important that the mechanics of extracting data from various sources be determined before the researching and coding process is begun. Standard practice procedures should be written so that clerical personnel can make basic determinations without consulting someone for each minor decision. (See Section VI.) When problems with, or exceptions to, existing written procedures are encountered, modifications to the procedures should be made to keep them up-to-date.

Depending on the comprehensiveness of the desired master file, certain information should be known prior to initiating the coding process. The following items are the information which the master file will accomodate:

*1. The complete mailing address of the highest ownership for a particular file record.

*2. The complete mailing address of the plant, division, or outfall.

*3. Information regarding the geographic location of the enterprise and its individual outfalls and/or intakes.

4. Exception code, basic criteria for determining the reason(s) for a record to except.

5. Type code, basic criteria for determining this code.

6. SIC code, enough information to properly code this item.

7. Organization code, a logical scheme for assignment of this code.

8. Identifier: intake (01 - 49), company (50), and outfall (51 - 99), numbers should be properly used.

9. Date established coded.

*10. Last survey date.

*11. Last visit date.

*12. Tax exemption status.

*13. Order numbers and data pertaining to them.

*14. Judicial action.

*15. Parameter information.

The above items with an asterisk (*) are items of data that will have to be extracted from available sources of information. Those without an asterisk are items that will depend on information extracted from other data sources. These latter items should have procedures clearly outlined for making coding decisions. (See Section VII.)

To give an estimate of the cost and time needed to establish the master file, a hypothetical master file and its STORET station setup was made. The general assumptions made for this hypothetical case are listed first; other assumptions are included in the sections where they apply. All assumptions are based on the experience of the investigating agency.

The following general assumptions are applicable to the hypothetical case here offered:

I. All 15 information items previously enumerated are readily available and complete, and can be extracted from existing records by clerical personnel.

II. The master file will have 2,000 records.

III. The records within the master file will be as follows:

A. 300 industries at 5 records each.

1. One site record per industry, with 2 parameters.
2. Four active outfalls or intakes per industry, with 5 parameters.

B. 100 municipalities at 2 records each.

   1. One site record per municipality, with no parameters.
   2. One active outfall record per municipality, with 10 parameters.

C. 125 commercial establishments at 2 records each.

   1. One site record per commercial enterprise, with no parameters.
   2. One active outfall record per establishment, with 4 parameters.
   3. 75 of the 125 commercial establishments will have groundwater discharges.

D. 50 inactive or inventory records, with no parameters.

IV. The only computer time involved will be the initial update and 3 subsequent updates, utilizing the program PAR.

V. Costs do not reflect the setting up of written detailed procedures for the specific situations encountered by other agencies.

VI. Computer and keypunch costs are based on the use of other agencies' equipment and are being charged back on the actual time used on a variable pro rata share.

VII. Estimated hourly labor rates include fringe benefits.

VIII. Costs for transferring or modifying load decks and documentation have not been included in these costs. These one-time costs will vary by installation.

SUPPLIES REQUIRED TO CREATE MASTER FILE

The following rationale was used in creating this master file, and also applies to STORET station setup. The following list are those items assumed to be included on initial setup:

- One station setup sheet per record input to the master file. This includes the following cards with their respective information:

  10 card - highest ownership
  11 card - highest ownership address
  20 card - plant name
  21 card - plant mailing address
  60 card - key location information, codes, and plant report name
  61 card - continuation of plant report name
  70 card - outfall name
  80 card - parameter information

- Commission Action Form @ 20 cards per sheet.

  64 card - organization level - 1 per record
  84 card - parameter level - 1 per parameter

- Performance Dates Forms @ 20 cards per sheet.

  66 card - performance scheduled - 1 per company record
  67 card - performance completed - 1 per company record

- Pollution Status and Tax Exemption Form @ 20 cards per sheet.

  68 card - rating and tax exemption - 10 per company record

- STORET Station Setup:

  Forms

  Surface water discharge - 3-1/2 forms per station
  Groundwater discharge - 2-1/2 forms per station

  Cards

  Surface water discharge - 8 cards per station
  Groundwater discharge - 7 cards per station

- STORET setup for stations with parameters only.

Summary of the setup forms to be completed and cards to be punched and verified:

	Forms		Cards	
Type of Record	Master File	STORET	Master File	STORET
Industrial	2,025	5,250	27,600	12,000
Municipal	315	350	4,700	800
Commercial	359	363	4,375	925
Inventory	59	0	500	0
ESTIMATED TOTAL	2,758	5,963	37,175	13,725

LABOR COSTS

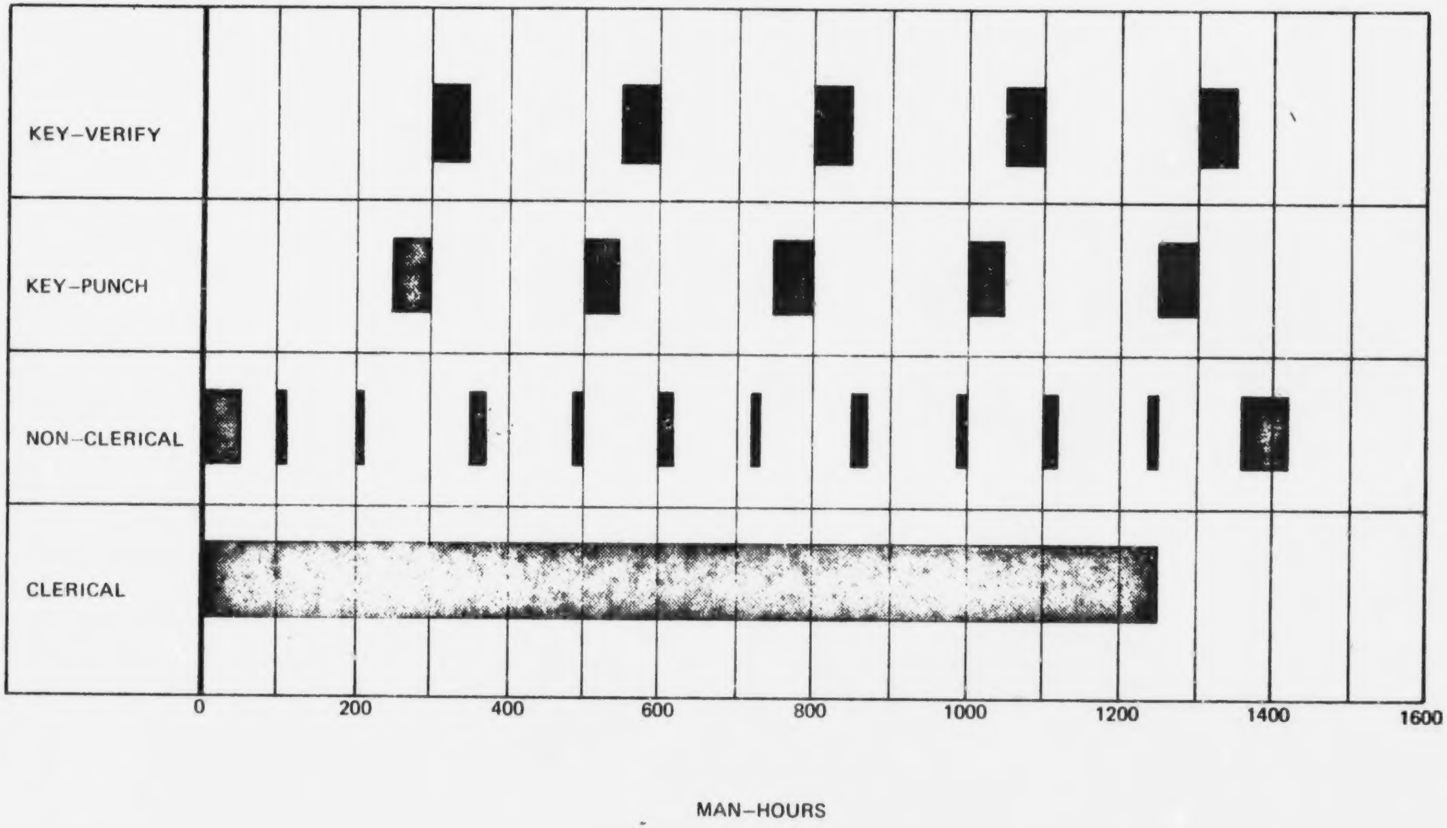
Labor costs will be the major cost involved in setting up the master file. If procedures are clearly outlined, if the clerical personnel doing the researching and coding are chosen with care, and if the files from which data is to be extracted are in good order, this cost will be minimized. The supervisor of the personnel doing the actual coding should be the same person to make decisions regarding items not specified in written procedures. Exhibit 15 shows the man-hours required to initially set up a 2,000-record master file.

Clerical Personnel

The following estimates are given for researching, coding, and other clerical time necessary for station setup:

EXHIBIT 15

MAN-HOURS REQUIRED TO SET UP
INITIAL 2000–RECORD MASTER FILE



Industrial: 3 man-hours per industry
Municipal: 2 man-hours per municipality
Commercial: 1 man-hour per establishment
Inventory: 1/2 man-hour per establishment

The total man-hours would be as follows, for researching, coding, and other clerical time:

Industrial:	300 industries @ 3 hours	=	900 man-hours
Municipal:	100 municipalities @ 2 hours	=	200 man-hours
Commercial:	125 establishments @ 1 hour	=	125 man-hours
Inventory:	50 establishments @ 1/2 hour	=	25 man-hours
TOTAL FACILITIES:	575	TOTAL	1,250 man-hours for clerical personnel

Nonclerical or Supervisory Personnel

Nonclerical personnel time is estimated at 20% of the clerical time. Total nonclerical time is: 20% of 1,250 or 250 man-hours.

Key-punching and Verifying Personnel

Operation	Total Cards	Estimated Rate & Cards/hr.	Total Hours
Punching	50,900	200	254.5
Verifying	50,900	200	254.5
		TOTAL	509 hours

COMPUTER COSTS

It is assumed that the only computer costs involved during the setup period will be the cost of updating a master file four times. Each run will consist of the setting up of 500 new master file records on a batch run system basis.

The computer costs to other agencies may be quite different from those encountered by the investigating agency. The "estimated charge time" is the sum of the process and channel times. For purposes of this computation, a fixed rate of utilization is assumed. The investigating agency is charged on the basis of total system operation cost for a particular month. This cost represents hardware, operator labor, and overhead. Each user of the system is charged his proportionate share of the entire cost, based on a ratio of his process and channel time to the total system process and channel time.

File Size Records	Charge Time Minutes
Initial 500	24
1,000	36
1,500	48
2,000	60
TOTAL	168 Minutes of Computer Usage

REPORT DISTRIBUTION

It is assumed that the reports will be distributed in the DUMP format, one record per page. Three copies of each report will be reproduced and distributed. A separate report will be distributed after each computer update to allow review of information by staff personnel.

Report Number	Pages	Copies	Total Pages
1	500	3	1,500
2	1,000	3	3,000
3	1,500	3	4,500
4	2,000	3	6,000
		TOTAL	15,000 Pages

EQUIPMENT RENTAL

The only equipment rental that will be necessary for the initial establishment of the master file will be key punch and key verify machines.

Operation	Total Hours
Punching	254.5
Verifying	254.5
TOTAL	509 Hours

SUMMARY - DIRECT ESTIMATED COSTS - INITIAL MASTER FILE SETUP

Supplies - Cards and Forms

Item	Estimated Total Number	Estimated Rate Per 1,000	Estimated Total Cost
Cards	50,900	$0.89	$ 45
Forms	8,721	7.00	61

Estimated Supplies Cost-----$106

Labor Costs

Type	Total Man-Hours	Estimated Rate Per Hour[1]	Estimated Total Cost
Clerical	1,250	$3.74	$4,675
Nonclerical	250	8.92	2,230
Key Punch Verify	509	4.60	2,342

Estimated Labor Cost-----$9,247

Computer Costs

File Size Records	Estimated Charge Time - Min.	Estimated Rate Per Minute[2]	Estimated Total Cost
Initial 500	24	$1.00	$ 24
1,000	36	1.00	36
1,500	48	1.00	48
2,000	60	1.00	60

Estimated Computer Cost------$168

Report Distribution

Estimated Number of Pages	Estimated Reproduction Rate Per Page	Estimated Total Cost
15,000	$0.02	$300

Estimated Report Distribution Cost-----$300

Equipment Rental

Equipment	Total Hours Used	Rate Per Hour	Estimated Total Cost
Key Punch/Verify Machine	509	$0.50	$255

Estimated Equipment Rental Cost-----$255

---

[1] The rate is 115% of hourly wage rate for retirement and fringe benefits.

[2] The estimated rate per minute includes hardware, operator labor, and overhead costs, as computed by the providing agency.

TOTAL ESTIMATED COSTS - INITIAL MASTER FILE SETUP

Item	Cost
Supplies	$ 106
Labor Costs	9,247
Computer Costs	168
Report Distribution	300
Equipment Rental	255
Total Estimated Cost	$10,076

For the sake of giving an average cost per record for station setup, the following calculation is given. It should be emphasized, however, that the cost of setup will vary according to the time required for research, the type and extent of the information being set up, and other factors.

Average Cost per Record Setup = $\frac{\$10{,}076}{2{,}000}$ = \$5/record for Initial File Setup of 2,000 records

WISE OPERATIONAL COSTS - ESTIMATED ANNUAL COSTS FOR OTHER INSTALLATIONS

The costs of operating the WISE system on an annual basis are estimated below. These estimates are based on costs to the investigating agency, and do not necessarily represent costs if the system were installed in another agency. However, where possible, parameters such as computer time, man-hours and numbers of forms are given so that hopefully actual costs for other agencies can be readily computed.

These estimates are based on a master file in the WISE system of approximately 3,000 records. Using the same ratio of records to facilities that was used in the previous section on the initial setup, 3,000 records represent approximately 863 facilities. At various places in the cost breakdown, other bases for estimation are given. Costs generally will be given on a monthly estimate. In those cases where an operation is not carried on monthly, the time period will be indicated, so that an annual cost may be obtained.

SUPPLIES

Cards - Monthly Basis

No. of Cards	Rate/1,000 Cards	Cost/Month
8,800	$1.00	$9

Forms - Monthly Basis

Number of Operator Forms	Rate/1,000 Forms	Cost/Month
1,000	$19.00	$19

WISE OPERATIONAL COSTS
ESTIMATED ANNUAL COSTS FOR OTHER INSTALLATIONS

Month Number	Supplies	Labor	Computer	Report Distribution	Equipment Rental Charge	Microfilming	Total
M 1	$ 32	$ 2,364	$ 349	$ 160	$ 169	$ 40	$ 3,114
M 2	32	2,364	349	160	169	40	3,114
QM 3	32	2,367	394	160	169	40	3,162
M 4	32	2,364	349	160	169	40	3,114
M 5	32	2,364	349	160	169	40	3,114
QM 6	32	2,367	394	160	169	40	3,162
M 7	32	2,364	349	160	169	40	3,114
M 8	32	2,364	349	160	169	40	3,114
QM 9	32	2,367	394	160	169	40	3,162
M 10	32	2,364	349	160	169	40	3,114
M 11	32	2,364	349	160	169	40	3,114
AQM 12	32	2,375	490	160	169	40	3,266
TOTAL	$384	$28,388	$4,464	$1,920	$2,028	$480	$37,664
*Cost per Facility	$0.45	$32.89	$5.17	$2.22	$2.35	$0.56	$43.64

* Based on servicing 863 facilities

EXHIBIT 16

Number of Other Forms	Rate/Form	Cost/Month
400	$0.01	$4

SUPPLIES - Cost per month----- $32

LABOR

Clerical Labor - Monthly Basis (2 full-time clerks)

Estimated Man-Hours	Rate/Hour	Cost/Month
350	$3.74	$1,309

Nonclerical or Supervisory Labor - Monthly Basis (20% of clerical time)

Estimated Man-Hours	Rate/Hour	Cost/Month
70	$8.92	$624

Key-Punch and Key-Verify Labor

Estimated Man-Hours	Rate/Hour	Cost/Month
88	$4.60	$405

Program Maintenance Labor (Programming)

Program Runs	No. of Jobs	Time Per Job/Hrs.	Total Hours	Hourly Rate	Cost/Month
Monthly	10	0.5	5.0	$5.24	$26
Quarterly	11	0.5	5.5	5.24	29
Annually	14	0.5	7.0	5.24	37

LABOR - Cost per month:

When only monthly reports are prepared--------------------$2,364 (M)

When monthly and quarterly reports are prepared-----------$2,367 (QM)

When monthly, quarterly, and annual reports are prepared--$2,375(AQM)

COMPUTER

Monthly Program Run	Runs/Time Period	Chargeable Computer Time/Min.	Cost/Time Period @ $1.00/Min.
PAR	1	90	$ 90
TICKLE	1	1	1
HAIR	1	170	170
REMAIN	1	22	22
CERTOP	1	1	1
INFORM	1	12	12
LABEL	1	1	1
AUDIT	1	5	5
SAMPLE	1	45	45
PRIORITY	1	2	2

COMPUTER - Cost per month when only monthly reports are prepared------------------------$349 (M)

Quarterly Program Run	Runs/Time Period	Chargeable Computer Time/Min.	Cost/Time Period @ $1.00/Min.
DUMP	1	45	$ 45

COMPUTER - Cost per month when monthly and quarterly reports are prepared-------------$394 (QM)

Annual Program Run	Runs/Time Period	Chargeable Computer Time/Min.	Cost/Time Period @ $1.00/Min.
INFORM	1	80	$ 80
LABEL	1	1	1
PRIORITY	1	15	15
			$ 96

COMPUTER - Cost per month when monthly, quarterly, and annual reports are prepared------------$490 (AQM)

REPORT DISTRIBUTION

Monthly Basis

Pages Distributed	Reproduction Cost/Page	Reproduction Cost/Month
8,000	$0.02	$160

Report Distribution - Cost per month-----$160

EQUIPMENT RENTAL

Equipment Item	Cost/Month
Terminal (LST-ASR 33)	$ 65
Key-Punch Machine (88 hours @ $0.50/hour)	44
Microfilm Equipment (Reader/Printer)	60

Equipment Rental - Cost per month-----$169

MICROFILMING (On job basis by another agency)

Monthly Basis

Item	Description	Estimated Quantity	Estimated Rate	Estimated Cost
Labor	Filming & Proofreading	5 hours	$6/hour	$30
Film	Roll Silver	1 roll	4/roll	4
Film	Silver Processing	1 roll	6/roll	6

Microfilming - Cost per month-----$40

WISE OPERATIONAL MAN-HOURS

The estimated man-hours necessary to maintain a 3,000 record (863 facilities) master file are summarized below:

Labor Category	Man-Hours/Month	Man-Hours/Year
Clerical	350.0	4,200
Nonclerical or Supervisory	70.0	840
Key-Punch/Verify	88.0	1,056
Program Maintenance		
Monthly reports (8 times)	5.0	40
Quarterly reports (3 times)	5.5	17
Annual report (1 time)	7.0	7
	TOTAL MAN-HOURS ANNUALLY	6,160

Therefore, the above annual projection represents approximately 8.0 man-hours/facility.

SECTION IV

WISE - MANAGEMENT REPORTS

This section describes the management reports prepared by the WISE system, their use, advantages, and contents. The reports described have been designed to aid in decision-making, and to help reduce the manual efforts in paperwork processing. Report features that meet these objectives are:

- Performance measurement of waste water treatment plants to help determine Commission action.
- Identification of exceptions (e.g., over standard) to help determine various district actions.
- Capability to selectively retrieve data from the master file according to the user's need.
- Preparation of returnable documents to reduce clerical effort and provide more accurate input data.

The reports or documents described in detail in the following pages are:

Monthly Performance and Action Report (Exhibit 17)
Monthly Operating Report (Exhibit 18)
WISE - File Dump (Exhibit 19)
WISE - Performance Due Letter (Exhibit 20)
WISE - Audit List (Exhibit 21)
WISE - HAIR Report (Exhibit 22)
WISE - SAMPLE Report (Exhibit 23)
WISE - PRIORITY (Exhibits 24 and 25)
WISE - Facility Grading List (Exhibit 26)

MONTHLY PERFORMANCE AND ACTION REPORT (PAR) (EXHIBIT 17)

Report Use

The Monthly Performance and Action Report reflects the decisions of the Commission and the activities of its personnel concerning specific surveillance and enforcement activities with involved organizations. The primary use of the PAR report is to identify and report the exceptions detected in an organization's performance. The factors reviewed for exception-reporting are:

- The number of times that parameter tests were over-standard during the last twelve months.
- The parameter tests that did not meet standards.
- The parameters that were not reported.
- Organizations not visited recently by district staff.
- Organizations which have failed to meet performance due dates.

Advantages

The format of the PAR report is based upon the coding structure described in Section VII. The major code is the primary station number, which identifies the particular station. The primary station number is a

EXHIBIT 17

MONTHLY PERFORMANCE AND ACTION REPORT FOR 1971 MARCH

STATION			PERF	ORGANIZATION NAME				ORG'TION OPRT'G REPORTS		DATE OF LAST FIELD ACTION		ANNUAL RATINGS				COMMISSION ACTION					ACTION	PERFORMANCE DUE DATES								LEGAL ACTION		
NUMBER	YR SET UP	SIC CODE		STORET PARAMETER		ORDER LIMITS		FOR LAST 12 MOS		SURVEY	VISIT	TAXEX	LAST 3 YEARS			TYPE	NUMBER	DATE		STATUS		PRELIMINARY		FINAL		START		COMPLETE		DATE	WHO	WHAT
				NUMBER	NAME	AVERAGE	LIMIT	STD +	RPTS SUB	MO YR	MO YR		-2	L	C			MO	YR			REQ MO YR	ACT MO YR	REQ MO YR	ACT MO YR	REQ MO YR	ACT MO YR	REQ MO YR	ACT MO YR	MO YR		
				ENFORCEMENT REGION I FIELD ENF. DISTRICT 2 (LANSING) SAGINAW RIVER																												
290008	70	621		CLARK PICKLE COMPANY INC MASON CLARK PICKLE CO. ALL OUTFALLS							120		E	R	R	T	01409	9	70	C	C							090	N			
370006	70	820		FORE FARMS INC MT. PLEASANT FORE FARMS ALL OUTFALLS							110		A	A	A	F	01441	11	70	C	C			031	N	041	XXX	101				
370007	70	820		FORE FARMS INC MT. PLEASANT SPRAY IRRIGATION TO GROUNDWATER							100																					
			N	00630	NO 2 & No 3		< 10	0	B							F	01441	11	70	C												
			N	00940	CL		< 150	0	B							F	01441	11	70	C												
			N	50050	FLOW-MGD			0	B							F	01461	11	70	C												
820215	70	281		SCHAFER CHEMICAL CORP. WESTPHALIA DIV							080																					
				15" PIPE TO SCHOOL CR.							090																					
			P	00400	PH	> 6.5	< 9.5	0	12																							
			F	00530	SOLIDSUS		< 35	1	12																							
			F	32270	CE MG/L		< 15	12	12																							
			S	50050	FLOW-MGD			0	12																							
			F	85003	PHENOL#D	< 12	< 20	12	12																							
260005	70	400		JONES MICK AUTO. LAUNDRY CLAWSON DISCHARGE TO GROUNDWATER							XXX		A	A	A																	
290002	69	982		OSKAR, CITY OF WASTEWATER TREATMENT PLANT OSKAR W.W.T.P. ALL OUTFALLS							120			E	E	F	01468	2	69	C	C	039	N	069	N	089	N	109	N	0179	AR	

fundamental part of both the WISE and STORET systems, and provides the interface between them. The direct results of this interface are the following advantages of the PAR program and report.

- The PAR program develops actual performance data by comparing operating data against standards established by the MWRC and staff. The parameters compared are the STORET pollutant parameter codes.
- Input is developed for the STORET system as a by-product of the PAR program.
- The PAR program provides analysis for short-range (monthly) use, while the same input data is retained in the STORET system for long-term performance analysis.
- The PAR report is a management exception report in which variations from accepted performance are isolated.
- The report has been designed and structured for computer preparation rather than for storage and retrieval through manual methods.
- The report is designed to report Commission actions, construction plans, and legal actions in a codified and concise manner for management review.

PAR Report Content

Station

Number:	Six-digit Primary Station Number - input to STORET system.
Yr. Set Up:	Last two digits of the year in which the Station Number was assigned.
S.I.C. Code:	Standard Industrial Classification code describing type of industry. (See Section VII)

Performance Code

One of three codes will precede the STORET parameter code number and signify:

P - Parameter tested and meets standard.
N - Parameter not tested that month.
F - Parameter tested and fails to meet standard.

The decision to print "P," "N," or "F" will be made by the computer programs. (Late reports will show parameter as not tested.)

Organization Name

Thirty-four characters have been reserved on each of three successive lines to record the name of the organization and its outfall description.

If the outfall description is preceded by an asterisk, it signifies that the current pollution status rating (current year just ended) fell below the annual rating for the previous year.

STORET Parameter Code: The five-digit parameter code followed by the eight-digit alphabetic abbreviation and by a five-position field to indicate the value of the standard assigned to each parameter by Commission order or other legal action. Such standard value is displayed as the "average" as well as the "limit."

The organization is required to submit a Monthly Operating Report (Exhibit 18) which:

(1) Permits a review by MWRC of the Monthly Operating Report and records a summary of the organization's performance.

(2) Serves as an input document to the STORET computer program. (The input to STORET is prepared as a by-product of the PAR program.)

Organization Operating Report

Last 12 Months: Accumulated performance for the last 12 consecutive months.

Over Standard: Number of months within the last 12 months that the standard has been violated. Violation of standard occurs when either the average or limit values have been exceeded.

Reports Submitted: Number of times within the last 12 months that operating reports were submitted. Late reports are charged against the organization. Two reports may be submitted in the following month to correct the omission. Such reports must be dated with the month for which they are submitted.

Date of Last Field Action

Last Survey Date: Month and year of last survey conducted by MWRC staff.

Last Visit Date: Month and year of last visit by a District Engineer or other MWRC staff member. Where applicable, the survey or visit can be associated with a particular parameter code.

Annual Ratings

Tax Exemption Status code is shown for each organization as:

N - None in effect - eligibility not known.
Y - Eligible to date - in effect.
R - Eligible but rescinded.

Annual ratings are shown for each organization (and/or parameter code if applicable) for the past three years. The computer will retain the ratings for the past 10 years, and they can be printed upon special request.

Commission Action

This block of information reflects the action of MWRC in relation to a particular organization. All Commission actions are initiated with an order number. This is a sequential number to serve as an index to the actions taken and to permit the computer to make a mechanical association between a given order and the incoming field or office reports relevant to that order.

Order Status: The order may be in one of two conditions, which signify.

R - Staff personnel have been requested on the indicated date to initiate preparation of the data necessary to support MWRC action. In this instance, the order number begins with a letter followed by four numbers (sequential) to indicate a file has been initiated. This number will be replaced by the regular MWRC order number at the appropriate time.

C - The data assembled for the order is complete and the file has been presented to the Commission for action on the date indicated. This date will not change.

Date: Two dates will be shown affecting the file or the order:

(1) The date on which a District Engineer was given a file and requested to obtain more information.

(2) The Commission order date (replacing the above information). This date is permanent and will not change.

Type: Describes one of five types of action that may have been initiated.

S - Statutory Hearing - Although statutory hearings are, by law, open to the public, no special notices are served to anyone other than the affected parties.

O - Open Hearing - The matter has been deemed of sufficient public interest to suggest that an open hearing is in order. Interested parties will be advised of the matter at hand by the appropriate authority.

V - Voluntary Stipulation - The organization signed a formal agreement accepting the Commission's program and schedule for corrective action.

D - Order of Determination - Used whenever the MWRC receives a Statement of New or Increased Use.

F - Final Order - Issued by the MWRC:

(1) Where there has been a default in Voluntary Stipulation either as to schedule or to performance level of facilities.

(2) To abate or correct an existing water pollution problem. (Public Acts of 1929, Act 245, Sec. 7.)

Performance Due Dates

Action: Three codes indicate the kind of action that initiated the construction plans.

C - Commission Action (original).

M - Modified Commission Action which indicates a change has been made to the original required dates.

J - A court order has established the dates.

Preliminary-Final Start-Complete: These columns show the month and year the construction activity is required and the date performance is accepted by MWRC. In the column titled "Actual" one of three codes indicates:

xxx - One month prior to the required date.

N - In following months, prints until the Commission has accepted the action of the organization.

129 - The date of acceptance, as December, 1969.

Legal Action

Legal action is initiated when the case has been referred to the Attorney General. The trial counsel representing the Commission can be either the Attorney General (handling enforcement or violation of Commission orders) or a local prosecutor (handling all criminal court actions for violations of court orders). Applicable law determines when a Commission order is subject to either administrative or criminal action.

Date: Month and year the Commission received notice of the indicated action.

Who: Indicates by a letter which office is representing the Commission.

A - State of Michigan Attorney General.
P - Local prosecutor.

What: Indicates the type of legal action.

P - Petition the court for a trial.
T - Case has received a date for trial.
A - Organization has appealed the trial court verdict.
C - Case decided for Commission.
D - Case decided for defendant.

MONTHLY OPERATING REPORT (EXHIBIT 18)

Report Use

The Monthly Operating Report is described in Section VIII, WISE Input Documents. This report is computer-prepared as a turn-around document for recording parameter measurements. In addition, it serves as a notice to the waste treatment plant operator of the required reporting and the parameters to be reported for that plant.

Advantages

The design of the report as a turn-around document provides the major advantages of controlled accuracy of input data and reduction of manual effort for report preparation.

Report Content

See Section VI, Procedure Number 6.

WISE - FILE DUMP (EXHIBIT 19)

Report Use

The File Dump is a report that lists all the data recorded in the PAR file for an individual organization. The report is used to review and verify data that was processed against the master file. Since this report is the only WISE system report with all of the record data, an additional use is to review historical data in the file.

Advantages

- Provides complete information recorded for an organization.
- Provides the last ten years of performance rating codes.
- Provides an easy method for information search.

Report Content

Location (Code 1)

Region	1-digit code to designate enforcement region.
District	2-digit code to designate enforcement district.
Basin	7-digit code to describe river basin: (2) major, (2) minor, (3) terminal stream.
Enforcement Region	Same as region.
Enforcement District	Same as district.
Muskegon River	Name of the river basin (terminal stream).

EXHIBIT 18

FLY ROD AND REEL CORP
CHIEF EXECUTIVE OFFICER
111 N. REACH BLVD
MUSKEGON, MICHIGAN 44444

REEL PLANT NO. 1
JOE LINE
111 S. REACH BLVD
S. MUSKEGON, MICHIGAN 44445

STATION NUMBER 610001

MONTHLY OPERATING REPORT FOR ____________ MONTH ________ YEAR

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

TO: STATE OF MICHIGAN
WATER RESOURCES COMMISSION

Please complete and submit one copy of this form at the end of each month. This report must reach our Lansing office by the 8th of the month.

54IN COOLING WATER OUTFALL
FLY ROD AND REEL CORP
REEL PLANT NO. 1

If data is collected once daily, enter the value as a DAILY AVERAGE. If data is collected more frequently, compute the DAILY AVERAGE (arithmetic) and record it. In addition record the highest value and lowest value found each day. Coliform data, if reported, should be a geometric average. Please use units specified. At end of month compute the Monthly Average and record as MONTH SUMMARY.

ORDER NO	(9 13) 11111			(9 13) 11111			(9 13) 11111			(9 13) 11111			(9 13)			(9 13)			(9 13)		
PARAM. NO	(14 18) 00720			(14 18) 01025			(14 18) 01040			(14 18) 50050			(14 18)			(14 18)			(14 18)		
NAME	CYANIDE			CADMIUM			COPPER			FLOW MGD											
UNITS	MG/L			UG/L			UG/L			MGD											
STD	0.05		0.15	5		10	15		30	0.08		0.10									
DATE	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW
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31																					
MONTH SUMMARY	(56 64)	☒	☒	(56 64)	☒	☒	(56 64)	☒	☒	(56 64)	☒	☒	(56 64)	☒	☒	(56 64)	☒	☒	(56 64)	☒	☒
	MONTH (75 76) DAY (77 78) YEAR (79 80)			DUP PUNCH 75 80			DUP PUNCH 75 80			DUP PUNCH 75 80			DUP PUNCH 75 80			DUP PUNCH 75 80			DUP PUNCH 75 80		

SIGNATURE OF CERTIFIED OPERATOR ______________________

CERTIFICATION NUMBER 23456789ZY

WISE – FILE DUMP

```
            1                                                   2                                                  3
 REGION:     2        ENFORCEMENT REGION 2                 PRIMARY STATION NUMBER:  610001                        *60610-21
 DISTRICT:   04       FIELD ENF. DISTRICT 4                ORGANIZATION NAME:       FLY ROD AND REEL CORP.-       *   60
 BASIN:      0829002  MUSKEGON RIVER                       ORGANIZATION NAME:       REEL PLANT NO. 1              * 60661
                                                           OUTFALL NAME:            54IN COOLING WATER OUTFALL    *   70
        4                                                                                                         *
CORPORATE OR HIGHEST NAME     FLY ROD AND REEL CORP.                                                              *   10
RESPONSIBLE OFFICER:          CHIEF EXECUTIVE OFFICER                                                             *   10
STREET ADDRESS:               111 N. BEACH BLVD.                                                                  *   11
CITY, STATE & ZIP:            MUSKEGON, MICHIGAN 44444                                                            *   11
        5                                                                                                         *
DIVISION, PLANT OR OUTFALL:  REEL PLANT  NO. 1                                                                    *   20
RESPONSIBLE OFFICER:          JOE LINE                                                                            *   20
STREET ADDRESS:               111 S. BEACH BLVD.                                                                  *   21
CITY, STATE & ZIP:            S. MUSKEGON, MICHIGAN  44445                                                        *   21
******************************************************************************************************************
ORG. AND OUT. INFORMATION      SECONDARY STATION CODE =  8 2 150 FRRC1 50     DATE ESTABLISHED =  01 70           * 60670
                                          6              B T MIC CO-NO 10               7         MD YR           *   8
******************************************************************************************************************
        LAST  LAST  TAX LAST 10 YR  ACT & ORD  ACT.  * A  PLANS DUE                CONSTRUCTION      *JUDICL*
        SURV. VISIT EX. RATINGS     S-T-NUMB   DATE  * C  PRELIM    FINAL          START     FINISH  *WMOYRW*
         9     10   11    12          13        14   *15                   16                       *  17  *
ORG     01 70 02 70  Y  A000000000  C F 11111  01 70 * C  0270 0270 0870 0000  0970 0000 0671 0000*P0470P*
                                                     *                                              *      *
OUT     01 70 00 00  0  0000000000  C F 11111  01 70 * 0  0000 0000 0000 0000  0000 0000 0000 0000*000000*
                                                     *                                              *      *       19          20
PAR  18                                              *                                              *      * AVERAGE   LIMIT    ST-RS
00720                                                *                                              *      *R          R        + 12
CYANIDE 02 70 00 00  0  0000000000  0 0 11111  00 00 * 0  0000 0000 0000 0000  0000 0000 0000 0000*000000*    0.05       0.15 NN 00
                                                     *                                              *      *
01025                                                *                                              *      *R          R        + 12
CADMIUM 00 00 00 00  0  0000000000  0 0 11111  00 00 * 0  0000 0000 0000 0000  0000 0000 0000 0000*000000*       5         10 NN 00
                                                     *                                              *      *
01040                                                *                                              *      *R          R        + 12
COPPER  00 00 00 00  0  0000000000  0 0 11111  00 00 * 0  0000 0000 0000 0000  0000 0000 0000 0000*000000*      15         30 NN 00
                                                     *                                              *      *
50050                                                *                                              *      *R          R        + 12
FLOW MGD 00 00 00 00 0  0000000000  0 0 11111  00 00 * 0  0000 0000 0000 0000  0000 0000 0000 0000*000000*    0.08       0.10 NN 00
                                                     *                                              *      *
******************************************************************************************************************************
   80    * 63  * 62  **      68     **      64       ***  66   * 67 * 66 * 67 ** 66 * 67 * 66 * 67 *  65  *       80       *
  21     * 73  * 72  **      78     **      74       ***  76   * 77 * 76 * 77 ** 76 * 77 * 76 * 77 *  75  *                *
         * 83  * 82  **      88     **      84       ***  86   * 87 * 86 * 87 ** 86 * 87 * 86 * 87 *  85  *                *
```

EXHIBIT 19

Organization (Code 2)

Primary Station Number	6-digit code that identifies the county (2) and the station (4).
Organization Name	Name of industrial firm or municipality.
Outfall Name	Name of the individual outfall for the organization.

Card Number (Code 3)	2-digit code that denotes the type of punched card transaction that produced this data.

Corporate Name (Code 4)

Corporate or Highest Name Responsible Officer	Name of corporation. Name of company official.
Street Address	Address of organization.
City, State, and Zip Code	Name of city, state, and zip code.

Division Name (Code 5)

Division, Plant, or Outfall Responsible Officer	Name of plant. Name of plant official.
Street Address	Address of plant.
City, State, and Zip Code	Name of city, state, and zip code for the plant.

Secondary Station Code (Code 6)

B	1-digit staff exception code.
T	1-digit type of owner code.
SIC	3-digit Standard Industrial Classification Code.
CO-NO	5-digit organization identification number.
I/O	2-digit code to designate an intake, outfall, or plant.

Date Established (Code 7)

MO YR	The month and year that this organization was established on the master file.

Card Number (Code 8)	2-digit code that denotes the type of punched card transaction that produced this data.

Organization and Outfall Information (Codes 10, 11, 12, 13)

Last Surv.	(9)	Month and year of last field survey.
Last Visit	(10)	Month and year of last field visit.

Tax Ex.	(11)	Tax exemption code: N - None in effect. Y - Eligible to date in effect. R - Eligible but rescinded.
Last 10-Year Ratings	(12)	Pollution status rating codes for the last 10 years.
Action and Order		Commission action.
S	(13)	Order status: R - File has been initialed. C - File has been presented to the Commission.
T	(13)	Type of action: S - Statutory hearing. O - Open hearing. V - Voluntary stipulation. D - Order of determination. F - Final orders.
NUMB	(13)	5-digit order number.
Act. Date	(14)	Month and year of action taken.
AC	(15)	Code to indicate the kind of action that initiated the construction plans: C - Commission action. M - Modified commission action. J - A court order has modified the dates.
Plans Due		
Preliminary	(16)	Month and year of required and actual due dates.
Final	(16)	Month and year of required and actual due dates.
Construction	(16)	
Start	(16)	Month and year of required and actual due dates.
Finish	(16)	Month and year of required and actual due dates.
Judicial	(17)	Date and codes to indicate what legal action has been taken.
W		Code to indicate what action has been taken: P - Petition the court for a trial. T - Case has received a date for trial. A - Organization has appealed the trial court verdict. C - Case decided for Commission. D - Case decided for defendant.
MO YR		Date of legal action.
W		Code to indicate which office is representing the Commission: A - State of Michigan Attorney General. P - Local prosecutor.
Par	(18)	Parameter code and name for a water pollutant parameter for this station.
Average-Limit	(19)	Pollutant parameter standards for each parameter indicated for the organization.

ST	(20)	A 2-digit numeric quantity that indicates the number of months that standards have been exceeded.
RS	(20)	A 2-digit numeric quantity that indicates the number of times during the last 12 months that reports were submitted.
Card Number	(21)	A 2-digit code that indicates the type of punched card transaction that produced this data.

WISE - PERFORMANCE DUE LETTER (EXHIBIT 20)

Report Use

This document is a computer-printed letter that is sent to an organization one month prior to a required performance due date as a reminder of required action. During the following month, if a report of performance completed has not been submitted, a PAR exception report is printed and sent to the District Engineer for follow-up.

Advantage

This letter provides automatic notification and follow-up on performance due. The notification is based on dates supplied to the WISE system by MWRC staff.

Content

Mailing address of organization
Month of performance due
Primary station number
Organization name and location
Outfall name
MWRC order number

WISE - AUDIT LIST (EXHIBIT 21)

Report Use

This report is a proof list of the punched cards read into the Audit program. The Audit program is an edit of the agency, parameter, and laboratory cards prepared for the STORET system. The Audit List provides a listing of the cards read with appropriate error messages based on the edits.

Advantage

The primary benefit for listing these cards is to detect and correct errors in the cards before mailing them to the STORET system.

WISE - PERFORMANCE DUE LETTER **EXHIBIT 20**

STATE OF MICHIGAN

NATURAL RESOURCES COMMISSION
E. M. LAITALA
Chairman
CARL T. JOHNSON
ROBERT C. McLAUGHLIN
AUGUST SCHOLLE
HARRY H. WHITELEY

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES
STEVENS T. MASON BUILDING, LANSING, MICHIGAN 48926
RALPH A. MAC MULLAN, Director

WATER RESOURCES COMMISSION
JOHN E. VOGT
Chairman
STANLEY QUACKENBUSH
Vice Chairman
GERALD E. EDDY
JOHN P. WOODFORD
JIM GILMORE
GEORGE F. LIDDLE
JOHN H. KITCHEL, M.D.

CONSOLIDATED FOODS CORP.
JOHN DOE
135 S. LASALLE
CHICAGO, ILLINOIS 60603

DEAR SIR:

THIS IS TO REMIND YOU THAT ORDER NO. V00164 OF THE MICHIGAN WATER RESOURCES COMMISSION HAS REQUIRED YOU TO START CONSTRUCTION DURING THE MONTH OF APRIL, 1971 OF WASTE CONTPOL FACILITIES FOR:

PRIMARY STATION NUMBER: 030020
ORGANIZATION NAME: MICHIGAN BANANA PROCESSORS, INC.
ANYCITY
OUTFALL NAME: MICH. BANANA PROCESSORS, INC. - ALL OUTFLS

PLEASE PRESENT THE REQUIRED INFORMATION TO:

MICHIGAN WATER RESOURCES COMMISSION
STEVENS T. MASON BUILDING
LANSING, MICHIGAN 48926

THANK YOU FOR YOUR ATTENTION.

VERY TRULY YOURS,

MICHIGAN WATER RESOURCES COMMISSION

F. B. FROST
CHIEF ENGINEER

MICHIGAN

WISE – AUDIT LIST

```
JOB CONTROL CARD            THIS IS A JOB CARD WITH ERRORS
                             . . . . 1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 . . . . 7 . . . . 8
COLUMN ERRORS UNDERSCORED   XX       XXXXXX  X XXX                XX


FIRST CARD ASSUMED JOB CARD WITH ERRORS


AGENCY CARD                 THIS IS AN AGENCY CARD, DESIGNATED BY COLUMN 80                            A
                             . . . . 1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 . . . . 7 . . . . 8
PARAMETER CARD              :P:,  0001000300003100040000500005300051500535000950067100665006200061000605    C
                             . . . . 1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 . . . . 7 . . . . 8

    14
  10    300    310    400    500    530    515    535     95    671    665    620    610    605      0
   0      0      0      0      0      0      0      0      0      0      0      0      0      0      0

PARAMETER CARD, CONTINUED   00410009000094000070009150092500930009350104500945009500105532730010320106500720
                             . . . . 1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 . . . . 7 . . . . 8

    30
  10    300    310    400    500    530    515    535     95    671    665    620    610    605    410
 900    940     70    915    925    930    935   1045    945    950   1055  32730   1032   1065    720

DIP CARD                    :D:,:490006:      ,7003301200,1,12.9,3.3,7.7,164 59,105,30 160,0.01,11 0.20,
                             . . . . 1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 . . . . 7 . . . . 8

DIP CARD, CONTINUED         0.07,0.5,80,95,2,23,............
      13       6  12.000  610.000    0.000    9.900------
      14      47  12.000  605.000    0.000    9.000--- --
      22      51  12.000  935.000    0.000    9.000------
      30      25  23.000  720.000    0.000    0.990------
PARAMETER VALUE(S) EXCEED BOUNDS   610,   605,   935,   720,
DIP CARD                  :D:,:770003:            ,7003301345,1,10.8,3.6,7.6,129,19,110,14,170,0.01,0.03,0.15,
                           . . . . 1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 . . . . 7 . . . . 8

DIP CARD, CONTINUED         0.07,0.5,72,95,2,6.5,.....,24,.,00.....
      13       6  12.000  610.000    0.000    9.900------
      14      47  12.000  605.000    0.000    9.000------
      22      51  12.000  935.000    0.000    9.000------
      30      25   6.500  720.000    0.000    0.990------
PARAMETER VALUE(S) EXCEED BOUNDS   610,   605,   935,   720,
DIP CARD                    :D:,:210010:      ,7003301430,1,12.9,2.6,7.9,174,4,170,,260,0.01,0.03,0.25,
                             . . . . 1 . . . . 2 . . . . 3 . . . . 4 . . . . 5 . . . . 6 . . . . 7 . . . . 8

DIP CARD, CONTINUED         0.11,0.2,120,125,1,2.0,............
      13       6  12.000   610.000    0.000    9.900------
      14      47  12.000   605.000    0.000    9.000------
      22      51  12.000   935.000    0.000    9.000------
      27      50 120.000 32730.000    0.000   99.000------
      30      25   2.000   720.000    0.000    0.990------
PARAMETER VALUE(S) EXCEED BOUNDS    610,   605,   935, 32730,   720,
DIP CARD                    :D:,:210011:       ,7003301500,3,13.5,4.7,7.9,150,5,145,,210,0.00,0.03,0.25,
```

EXHIBIT 21

WISE - HAIR REPORT (EXHIBIT 22)

Report Use

The HAIR (Hierarchical Information Retrieval) program provides for data retrieval based on combinations of the 64 retrieval codes. The program provides reports in three formats:

PAR - Report (Exhibit 17)
WISE - File Dump (Exhibit 19)
HAIR - Time-Sharing Retrieval Report (Exhibit 22)

All of the three reports have the same general use, which is to provide selective retrievals of data from the master file.

Advantages

The advantages of the three reports are more accurately described as the advantages of the HAIR program.

- Selective extraction and printing of data from the master file.
- Conditional analysis listing based on retrieval codes.
- Capability to select all records or parts of records that match a variety of codes input by the user.
- The amount of printing can be controlled by the user to limit the printing of bulky reports.
- The method of operation provides for on-line printing, if needed.

WISE - SAMPLE (EXHIBIT 23)

SAMPLE is the name given to the program module which checks those stations (pre-established, fixed-point sampling stations) not sampled according to a pre-established time schedule.

In the investigating agency's monitoring programs, there are stations that are sampled monthly, quarterly, twice annually, and annually. Monitoring stations that are to be sampled require a periodic response. In this way, if a sampler does not enter a visit card for a station he samples, the following month when the SAMPLE master file is updated, that station will except.

SAMPLE input documents are the same format as those used for the Performance and Action Report. The output report is shown in Exhibit 23.

WISE - PRIORITY

PRIORITY is the name given to the program module of the WISE system that calculates the Municipal Construction Grant priorities for the Sewage Works Construction Grant Program under the Federal Water Pollution Act of 1966, as amended, and under the State of Michigan Act 329, Public Acts of 1966, as amended.

EXHIBIT 22

PARTIAL INFORMATION CONTAINED ON HAIR RETRIEVAL REPORT

(FROM AN ASR-33 TERMINAL IN CONVERSATIONAL MODE)

```
GOOD AFTERNOON.
YOU ARE NOW CONNECTED TO THE MICHIGAN WATER RESOURCES COMMISSION
ENFORCEMENT INFORMATION SYSTEM - HAIR - (H)IER (A)RCHICAL (I)NFORMATION
(R)ETRIEVAL.
AFTER EACH QUESTION MARK YOU MUST TYPE THE REQUIRED ANSWER AND FOLLOW
IT BY PRESSING THE LEFT ARROW. IF FOR ANY REASON YOU MISH TO ABORT,
AND THE TERMINAL IS TYPING, USE THE BREAK KEY. IF THE TERMINAL IS NOT
TYPING PRESS THE CONTROL SHIFT KEY AND TYPE THE LETTER E. IF YOU MAKE
A TYPING ERROR YOU MAY DELETE CHARACTERS BY TYPING A SINGLE QUOTE
(SHIFT 7) FOR EACH CHARACTER YOU WISH TO DELETE. AN ENTIRE LINE MAY BE
DELETED BY ENTERING AN EXCLAMATION POINT (SHIFT 1).
DO YOU WISH INSTRUCTION ON THE USE OF HAIR (YES OR NO).
?NO←
   DO YOU WISH TABLE OF SUPPRESSION CODES (SC) TO BE
   TYPED (YES OR NO).
?YES←
(00)     HEADING AND DATE
(00)     PRIMARY STATION NUMBER, OUTFALL, NAME, ORGANIZATION NAME
               OPTIONAL ORGANIZATION NAME, DATE ESTABLISHED.
(10)     MAILING ADDRESS (OWNER, RESPONSIBLE PERSON, STREET ADDRESS,
               CITY, STATE AND ZIP CODE).
(20)     OUTFALL MAILING ADDRESS (OUTFALL MAIL TO, ATTENTION OF STREET
               ADDRESS, CITY, STATE AND ZIP CODE).
(30)     PRIMARY STATION NUMBER, RIVER BASIN NUMBER, SECONDARY STATION,
               REGION NAME, DISTRICT NAME, RIVER BASIN NAME.
(40)     ORGANIZATION NAME, OPTIONAL ORGANIZATION NAME.
               (41)     LAST VISIT DATE, LAST SURVEY DATE, ANNUAL RATINGS
                        FOR LAST TEN YEARS TAX EXEMPTION.
               (42)     ORDER TYPE, ORDER NUMBER, DATE OF ORDER, STATUS OF
                        ORDER.
               (43)     PERFORMANCE DUE DATES, WHO SET DATES, PRELIMINARY
                        PLANS (REQUIRED, ACTUAL), FINAL PLANS (REQUIRED,
                        ACTUAL), START CONSTRUCTION (REQUIRED, ACTUAL),
                        FINISH CONSTRUCTION (REQUIRED, ACTUAL).
               (44)     LEGAL ACTION WHO INITIATED, WHAT LEGAL ACTION,
                        DATE OF LEGAL ACTION.
(50)     OUTFALL NAME, ORGANIZATION NAME, OPTIONAL ORGANIZATION NAME:
               (51)     LAST VISIT DATE, LAST SURVEY DATE, ANNUAL RATINGS
                        FOR LAST TEN YEARS TAX EXEMPTION.
               (52)     ORDER TYPE, ORDER NUMBER, DATE OF ORDER, STATUS OF
                        ORDER.
               (53)     PERFORMANCE DUE DATES, WHO SET DATES, PRELIMINARY
                        PLANS (REQUIRED, ACTUAL), FINAL PLANS (REQUIRED,
                        ACTUAL), START CONSTRUCTION (REQUIRED, ACTUAL),
                        FINISH CONSTRUCTION (REQUIRED, ACTUAL).
               (54)     LEGAL ACTION WHO INITIATED, WHAT LEGAL ACTION,
                        DATE OF LEGAL ACTION.
(60)     PARAMETER INFORMATION:
               (61)     PARAMETER NUMBER, PARAMETER NAME, LIMIT AVERAGE,
```

EXHIBIT 23

MONITORING PROGRAMS MONTHLY SAMPLE REPORT

1971, DECEMBER

STATION			PERF	STATION NAME						DATE OF LAST FIELD ACTION								ACTION	PERFORMANCE DATES															
NUMBER				STORET PARAMETER		WATER QUALITY LIMITS					VISIT								1st QUARTER				2nd QUARTER				3rd QUARTER				4th QUARTER			
				NUMBER	NAME	AVERAGE	LIMIT												REQ		ACT		REQ		ACT		REQ		ACT		REQ		ACT	
											MO	YR							MO	YR	MO	YR	MO	YR	MO	YR	MO	YR	MO	YR	MO	YR	MO	YR
	EXCP. CODE TYPE			ENFORCEMENT REGION 1 FIELD ENF. DISTRICT 1 BASIN NUMBER 0836100																														
580073	13			OTTER CR. AT GOUIZ ROAD BRIDGE BACKGROUND WATER QUALITY YEARLY							XXX																							
			N	00010	TEMPH200			0	11																									
			N	00310	BUD-5			0	11																									
			N	00400	PH			0	11																									
			N	00530	SOLIDSUS			0	11																									
			N	00665	P-TOT			0	11																									
			N	00720	CYANIDE			0	11																									
			N	00940	CL			0	11																									
			N	01032	CR6-UG/L			0	11																									
			N	01090	ZINCUG/L			0	11																									
			N	31504	CULI-TMF			0	11																									

Under Act 329, the investigating agency is charged with the responsibility of assigning the priorities for construction grants. This law sets down the methodology for computation of the priorities. The essential input to the calculation of the priority points is shown on the computer input document (Exhibit 24).

The computation of the priority points is independent of other elements of the WISE system. Applications for grants are received, along with supporting documents, by agency staff. A considerable amount of staff time is spent investigating the data submitted. When all the investigative steps are completed, the data for each application necessary for calculation of the priority points assembled and priority points are assigned in accordance with Act 329. When the priority points have been calculated and final points set, the agency must submit to the Legislature by January 15, those sewage treatment projects eligible for grants, and the points and priorities assigned.

After approval of the list of eligible projects by the Legislature, monies available, both Federal and State, are distributed to the various eligible projects on the basis of the approved list.

In working with the grant applications, it is necessary to have various cross-references to the priority list. These are added features of reports produced by PRIORITY.

Actual computer runs of PRIORITY are made as applications are processed, so that a current list of completed applications is available throughout the year. (See Exhibit 25.) Since the final date for submission of applications is September 15, computer runs of PRIORITY are made between September 15 and the legislative deadline, January 15.

PRIORITY is a fairly uncomplicated program, and will be useful to the investigating agency because it eliminates tedious, repetitious calculations.

FACILITY GRADING SYSTEM

This program module is used to search the past history performance by an organization, and assign points based on this performance for the development of a letter grade. The District Engineer has the opportunity to adjust the computed points based on his knowledge and judgment of the organization. After the District Engineers have reviewed the listing (Exhibit 26) and adjusted points accordingly, the letter grade is determined and assigned to the organization.

This program performs the clerical work of reviewing an organization usually done by the District Engineer. Each outfall is examined for the following:

- Water quality
    - Number of parameters examined
    - Number of parameters failed
- Flow violations
- Number of Monthly Operating Reports not submitted
- Performance on required construction dates
- Past three years' performance

The results are computed to provide the points for each outfall.

EXHIBIT 24

PRIORITY POINT CALCULATION INPUT FORM

WPC – MICH ______ 1 5

PRIORITY POINT CALCULATIONS
PRIMARY STATION NUMBER ______ 6 11

NAME ______ 12 41

LOCATION ______ 42 71

A. POINTS ON BASIS OF FINANCIAL NEED; '80' 1 (CARD 2, DUP. COL. 1 – 5)

(1) TREATMENT WORKS CONSTRUCTION COST/CAPITA

ESTIMATED PROJECT COST = $ ______ (6 15) / DESIGN POPULATION = ______ (16 23) = $ ______ PER/CAPITA

COST/CAPITA / $5.00 X 0.2 = ______ / $5.00 X 0.2 = ______

(2) DEBT OBLIGATIONS/CAPITA

DEBT = $ ______ (24 32) / 1970 POPULATION ______ (33 40) = $ ______ DEBT/CAPITA

DEBT/CAPITA / $5.00 X 0.2 = $ ______ / $5.00 X 0.2 = ______

(A) SUBTOTAL ______

B. POINTS ON BASIS OF WATER POLLUTION CONTROL NEEDS:

(1) TOTAL ELIMINATION OF WASTEWATER DISPOSAL TO WATERS OF THE STATE. ☐ 41

(2) POLLUTION CAUSED INJURY WHICH WILL BE CORRECTED OR SUBSTANTIALLY LESSENED BY PROJECT.

a. PUBLIC HEALTH, SAFETY OR WELFARE BUT NOT INCLUDING BATHING. ☐ 42

b. PUBLIC WATER SUPPLY FOR DOMESTIC USE. ☐ 43

c. WATER SUPPLY FOR COMMERCIAL OR INDUSTRIAL USE. ☐ 44

d. IRRIGATION OR LIVESTOCK WATER SUPPLY FOR AGRICULTURE USE. ☐ 45

e. ORGANIZED PUBLIC RECREATIONAL USE INCLUDING BATHING. ☐ 46

f. AESTHETIC VALUE OR UTILITY OF RIPARIAN LANDS. ☐ 47

g. WATER SUPPLY FOR WILD ANIMALS, BIRDS, FISH AND ADVERSE EFFECTS ON AQUATIC LIFE OR PLANTS ☐ 48

h. USEFULNESS OF FISH OR GAME FOR HUMAN CONSUMPTION. ☐ 49

(3) ORDER STATUS:

COURT ORDER, ADMINISTRATIVE ORDER, STIPULATION OR AGREEMENT ☐ 50

(4) VOLUNTARY ADVANCE PROJECT ☐ 51

(B) SUBTOTAL ______

52 53 ______ (RESET PRIORITY WITHIN TIE) '80' 2 TOTAL POINTS ______

PRIORITY LISTING

ORDER OF PRIORITY	PROJECT NUMBER WPC-MICH	APPLICANT	PROJECT COST ESTIMATE	PRIORITY POINTS FINANCIAL NEED A	B	SUB TOTAL	POLLUTION NEED C	D	E	F	SUB TOTAL	GRAND TOTAL
1	0012	MUNICIPAL TREATMENT PLANT-MUDV	$ 937,129	135.8	1.0	15.0M	1	10	2	2	15	30.0
2	0018	MCDONALD MIXER-LIBERTY PA	$ 971,296	27.9	0.0	15.0M	1	11	1	1	14	29.0
3	0004	FREUS OFFICE-COMPREHENSIVE STU	$ 7,123	284.9	0.4	15.0M	1	9	1	1	12	27.0
4	0015	BUCHKO BLENDER-KRAKOW	$ 19,763	0.0	77.7	15.0M	2	7	1	1	11	26.0
5	0009	SCHAFER SILO-WESTPHALIA	$ 312	6.2	999.9	15.0M	0	8	1	2	11	26.0
6	0020	LAST ONE-RIGHT HERE	$ 35	0.2	706.1	15.0M	1	8	1	0	10	25.0
7	0011	GRIMACE EXCHANGE-NORTH AMERICA	$ 12,976	17.3	0.4	15.0M	1	8	1	0	10	25.0
8	0017	DROSTE DRAIN-LANSING	$913,417,965	94.3	0.0	15.0M	0	7	1	1	9	24.0
9	0001	VILLAGE OF MELANCHOLIA-NAUSEA	$ 237,422	12.9	0.5	13.5	0	7	2	1	10	23.5
10	0010	LONG BINH CONNEXION-VIET NAM	$ 7,934,611	9.8	1.4	11.3	2	9	1	0	12	23.3
11	0019	WWTP-CITY, STATE, ZIP	$ 471,939	188.7	1.7	15.0M	1	7	0	0	8	23.0
12	0005	CITY OF SYNTAX-ORIGINATION-CLA	$ 12,345	4.0	0.4	4.4	2	12	3	1	15	19.4
13	0014	MORLEY MIXER-OESTERLES PASTURE	$ 1,979	4.1	1.6	5.7	1	9	2	1	13	18.7
14	0007	THOMPSON CESSPOOL-OUTER SLABOV	$ 10,000	0.4	2.5	2.9	2	16	2	1	15	17.9
15	0002	MALAISE-ENNUI COUNTY	$ 79,132	0.2	0.0	0.2	0	7	3	0	10	10.2
16	0003	BIG DEAL-4TH FLOOR MASON BLDG.	$ 4,121,279	1.2	0.0	1.2	1	5	3	0	9	10.2
17	0008	BIG INTERCEPTOR-BIG TOWN, USA	$123,456,789	6.2	0.0	6.2	0	4	0	0	4	10.2
18	0013	GEUNTHER GRINDER-MICHIGAN	$ 631,792	0.1	0.0	0.1	0	6	1	2	9	9.1
19	0016	ZOLLNERS ZENITH-ZURICK	$ 4,712,932	4.2	0.4	4.6	0	0	1	1	2	6.6
20	0006	CHOMSKY DRAIN-BOLIVIA	$ 123	0.0	0.0	0.0	0	0	0	4	4	4.0

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
SEWAGE WORKS CONSTRUCTION GRANT PROGRAM UNDER THE
FEDERAL WATER POLLUTION CONTROL ACT, AS AMENDED
AND
ACT 329, PUBLIC ACTS OF 1966, AS AMENDED
1970-71
PRIORITY ASSIGNMENT IN ORDER OF PRIORITY
DECEMBER 27, 1971

* *

KEY TO POINTS FOR FINANCIAL NEEDS:
COLUMN A - PROJECT CONSTRUCTION COST PER CAPITA
COLUMN B - DEBT PER CAPITA
KEY TO POINTS FOR POLLUTION CONTROL NEEDS:
COLUMN C - TOTAL ELIMINATION OF WASTEWATER DISPOSAL TO SURFACE WATERS
COLUMN D - POLLUTION INJURY CREATED
COLUMN E - ORDER STATUS
COLUMN F - VOLUNTARILY ADVANCED PROJECT

EXHIBIT 25

FACILITY GRADING LIST

		WATER QUALITY			FLOW VIOL		MISSED RPTS		PERFORM DATES		HIST	TOT	ADJ	FINAL
STA NO	OUTFALL NAME	SUB	FAILS	PTS	NUM	PTS	NUM	PTS	MISSED	POINTS	PTS	PTS	PTS	PTS
060020	POND, J., DBA POND INC.			100								100		
060021	SMITH, K., CAR WASH			100								100		
060022	TOVID, CITY OF			100					1	-25		75		
060023	SCHAFEL, C. LAUNDROMAT			100								100		
060024	GUENTHER DAIRY CO.			100								100		
070009	MCCRACKEN CORP.-OSLAR			100								100		
070010	BUDA POWER COMPANY			100								100		
070014	BUDA POWER COMPANY	20	11	45	5	-15	4	-10				20		
070015	MCCRACKEN CORP.-OSKAR			100								100		
070016	BITTNER, VILLAGE OF			100			6	-15	1	-25		60		
070017	FERRIO, VILLAGE OF			100			6	-15	1	-25		60		
070018	BUDA POWER COMPANY	11		100			1	-2				98		
070019	BUDA POWER COMPANY	6		100								100		
070020	BUDA POWER COMPANY	3		100			3	-7				93		
070021	BITTNER, VILLAGE OF			100			3	-7				93		
080003	HINSHON, R. -THOMPSON			100								100		
080004	THOMPSON ALUMINUM PRODUCTS INC.			100							-5	95		
080005	THOMPSON MANUFACTURING COMPANY			100								100		
080007	CHAFFIN CORP. -IONIA			100							-5	95		
080008	KENNEDY, G. LAUNDRY			100								100		
080009	JONES, M., CARWASH, THOMPSON			100								100		
080010	CLARK & CHENEY			100							-5	95		
080012	HINSHON R. - THOMPSON	10		100			2	-5				95		
080013	THOMPSON MANUFACTURING COMPANY	6		100			6	-15				85		
080014	THOMPSON MANUFACTURING COMPANY	13	1	92			17	-42				50		
080015	THOMPSON MANUFACTURING COMPANY	6		100			6	-15				85		

EXHIBIT 26

SECTION V

OPERATIONAL PROCEDURES AND EQUIPMENT

COMPUTER-PREPARED DOCUMENTS

Computer-prepared documents are reports that have been printed by the computer and are subsequently used as input documents. The benefits gained in the use of these "turn-around" documents are the procedural control and the reduction of clerical effort.

Procedural control is established by:

- Document controls that provide a check on the number of reports issued and the number of reports returned. An indication of missing reports is developed by processing the input documents against the master file.
- The preprinting of nonvariable headings data for the computer-prepared documents. Major control is exercised over the accuracy of input data by reducing the amount of posting, recording, and transcription of data.

Clerical effort is greatly reduced through the same process by the reduction of the amount of data to be recorded on the documents and by the elimination of the look-up of various codes, user numbers, names, addresses, etc.

An additional possibility for computer-prepared documents is the capability to read the documents back into the computer through optical character reading (OCR) equipment. The data to be read, however, must be of a type font acceptable to the OCR reader. The present B5500 high-speed printer type font cannot be read by the OCR reader available. An OCR equipment evaluation is documented in this Section.

The MWRC's method for reporting industrial and municipal effluent quantity and quality is part of the computerized WISE system. This reporting requires the standardization and recording of document format. The Monthly Operating Report (Exhibit 18) has been designed as a "turn-around" document to control the accuracy of input. This document has the following information preprinted on it by the computer:

- Organization name and address
- Primary station number
- Secondary station number
- Enforcement district number
- Order number
- Parameter number
- Parameter name (abbreviation)
- Parameter units of measurement
- Parameter standards
- Certified operator name
- Certification number

Preceding page blank

The Certified Operator records the water quality measurements for the station parameter and returns the document by mail. The document is audited for errors and omissions, keypunched, and processed against the PAR master file. An exception report is immediately printed for stations not reporting, parameters not tested, and parameters tested that exceeded standards. The Monthly Operating Report is operational for both industrial and municipal reporting, and has proven successful in controlling the accuracy of input data.

OPTICAL CHARACTER READING

The laboratory input documents from water quality monitoring programs and Monthly Operating Reports have been reviewed from two major aspects:

- The capability of using computer-prepared, "turn-around" documents, preprinted with all the static data fields, for easy reference and reduction of manual effort. Variable data would then be added to the forms returned to data processing.

- The capability of using optical character reading (OCR) techniques to process the major source documents, thereby eliminating the transcription of documents to punched cards.

The OCR installation at the Michigan Department of State was reviewed to obtain the following information:

- Type of equipment in use
- Reading techniques available
- Cost of processing
- Special requirements of their OCR equipment

The Department of State is using Recognition Equipment Inc. readers and peripheral equipment. The entire system is linked together as an input processing system where input documents scanned are placed on magnetic tape for computer processing. During the reading-scanning process the records are edited according to programs supplied for each record type.

The complete input processing system consists of the following equipment:

- Document reader
- Page reader
- Magnetic tape output
- High-speed printer
- SDS-910 - 32,000 byte computer for editing
- Typewriter console for input control

The equipment has the capability of reading typed documents in the following sizes:

- Documents - 4-1/2 X 8-1/2 - 2 lines per document
- Forms - 8-1/2 X 11 - 40 lines per form
- Free-form typing - 8-1/2 X 11 - 20 lines per form

The reading capacity per line is 96 characters. The effective reading speed per type of document is estimated to be:

- 600 documents per minute (4-1/2 X 8-1/2 size)
- 1,100 preprinted forms per hour
- 700 free-form documents per hour

This system has the additional capability to read mark-sensed cards; however, this feature is not currently in use.

The cost of processing on a service bureau basis at this OCR installation has been quoted as approximately $100 per hour for machine time to read the forms and write them on magnetic tape. This fee does not include any specialized edit programs or forms cost.

This system requires that all input documents and forms be typed on an IBM Selectric typewriter because of the type font used. The B5500 high-speed printer type cannot be read by this system. If mark-sense cards were used, the system would require testing and checking to ensure that this equipment feature is functional.

While the use of OCR equipment requires that specific input machines and techniques be used (Selectric typewriters with 1403-22 type font) the benefits are also very specific. The benefits are lower cost, lower error rate, and high-speed data conversion. The optimum use of OCR is derived when computer-prepared "turn-around" documents are read back through the OCR reader with the variable data entered. Because of OCR requirements, it is recommended that the Commission use OCR equipment only if the following conditions exist:

- MWRC volume is large enough to justify their own reader--a volume of approximately 10-15 key punchers and key verifiers.

- The equipment capabilities of either the B5500 high-speed printer or the Michigan Department of State OCR reader were changed to read the high-speed printer characters. The variable data would be typed by an IBM Selectric typewriter with the same type font as the printer.

KEY-TO-TAPE

Another alternative input system reviewed was the keyboard-to-tape input system. This system provides for key-encoding from original source documents and transferring the data to magnetic tape. The review covered only the key-to-tape units since this unit is most adaptable to low-volume installations. Characteristics of the key-to-tape system are:

- Variable record size (i.e., over 80 characters)
- Capability to verify, search, and read the tape
- Program control for formatting
- Hard copy output (some machines)
- Magnetic tape output
- CRT displays (some machines)

The costs of the different units reviewed range in purchase price from $5,000 to $9,500, and in monthly lease price from $50 to $195 per unit.

The major advantages of the key-to-tape unit over the key-punch unit are the increased efficiency (up to 30%), variable record size, and the quiet operation where noise is a problem.

Since the input data volume is not large at the present time, it is recommended that the Commission continue to use key-punching as the input means. As the key-punch volume expands beyond the capacity of one girl per month, the key-to-tape method of input is recommended to gain the increased capacity and speed.

ENFORCEMENT FILES

Present Filing System

Enforcement files on waste water discharges are now maintained for correspondence, field trips, field operating reports, and actions taken by the MWRC. The files are maintained in alphabetic sequence and subdivided into the following groups:

- Industrial
- Miscellaneous, schools, Federal
- Drains, parks
- Municipalities
- Commercial
- Lakes and streams
- Litigation
- Industrial blueprints

The file volume is large, with an estimated 250,000 documents in the files and an estimated 1,000 documents added each work day. The active files are purged into the historical files in a three-year cycle.

Because of the volume of daily filing, filing media is usually backlogged, and filing errors are common. The size of many individual files makes duplication or copying very difficult and expensive. Because this file is access-oriented and approximately 100 staff personnel have access to the files, there is a problem in controlling materials removed from the file. As a result, confidence in the accuracy of the enforcement files is low. Administrative procedures for file control of documents removed or referenced are needed.

Microfilm Systems

A microfilm system is a means of eliminating problems in controlling the materials. To be adaptable to the particular requirement of the enforcement files, the type of microfilm must have the following advantages:

- Capability to update and add to an individual file.
- Capability to retrieve any or all documents from an individual file.

- Capability to easily duplicate the files for district office use.
- Capability to reduce filing errors and eliminate the problem of lost documents or files.
- Capability to provide sufficient confidence in the microfilm file to eliminate the manual files entirely after an appropriate backup period.
- Capability to print a hard copy from a microfilm file.

Other features, such as space reduction, are not especially critical to this application. The types of microfilm reviewed were:

- Roll film
- Cartridges
- Microfilm jackets
- Microfiche
- Aperture cards

Microfilm jackets and aperture cards are the only types adaptable to selective updating, which is a major requirement for this file.

Microfilm Jackets

Microfilm jackets are 4 X 6 clear mylar covers that retain 40 images or documents per jacket. Other sizes and capacities are available. Microfilm jackets would provide all of the features described plus the permanent protection for the film offered by the jacket cover. In addition, file security is provided by the capability to easily retain a duplicate file. The processing steps for microfilm jackets would involve:

- Filing media preparation.
- Filming and developing at the Record Center.
- Viewer-filler insertion of microfilm in jackets.
- Duplication of jackets.
- Manual filing of jackets.

Emphasis must be placed on administrative control of the microfilm files to ensure continued accuracy in the clerical filing operation. Procedures have been documented for this purpose.

Aperture Cards

Aperture cards are punched cards with a 35mm film insert to retain 1, 8, or 16 document images. Aperture cards would provide the necessary features plus automatic retrieval when punched-card equipment is used. However, because the aperture card would hold a maximum of sixteen documents, the number of aperture cards would be approximately three times greater than the number of microfilm jackets. Although the processing time and cost is less than microfilm, the initial equipment is more expensive because a special camera must be purchased. In addition, individual aperture cards cannot be updated. A new card is created for the documents to be filed that day, and this would create even more cards, since new material cannot be added to a card with a single document, once filmed. Aperture cards are most applicable when a single document or engineering print is being microfilmed. It would seem that aperture cards are not the most adaptable for this application.

Microfilm

The benefits of using microfilm for retention of the enforcement files are summarized here as a basis for the recommendations that follow:

1. The microfilm jacket is the modern file folder because of its capabilities to save space, maintain file integrity, and provide random access to the file.

2. The microfilm jacket is a file folder that permanently protects and provides a means to reproduce its indexing and all of its contents.

3. The microfilm jacket and contents are inexpensively duplicated and the master jacket never leaves the file, thus providing complete file control.

4. Although file space is not a major factor, the microfilm jackets will reduce file space requirements by approximately 98%.

5. Jackets handle like cards, and are easily retrieved by manual methods, or by electro-mechanical equipment.

6. Jackets provide rapid filing and updating of the file with filler rates estimated at up to 10,000 documents per hour.

7. Microfilm jackets are flat, providing high-quality viewing or duplication.

8. Jackets are versatile; the 4 X 6 size can accommodate 16mm and 35mm film.

9. Microfilm jackets represent an inexpensive method for filing.

10. The index on each jacket provides rapid indexing which can be adapted to many index techniques.

11. The MWRC department personnel will benefit from the knowledge that the enforcement files on microfilm are up-to-date and completely accurate.

Recommendations

The following recommendations are directed at the selection of the most effective type of microfilm, and the development of a plan to convert and implement the selected system.

1. It is recommended that microfilm jackets be used as the microfilm media, because they would offer the required features plus a smaller file size than the aperture card system.

2. A timetable for the conversion of the existing files should be developed and mutually agreed upon with the Record Center, due to the size of the file to be converted.

3. An administrative control procedure should be used to update and maintain the existing manual files. This procedure would assist in updating the files before microfilming (See Procedure 5.)

4. A similar control procedure should also be used to retain the continued integrity of the microfilm file.

5. A file control unit should be established to control and maintain the manual file and to process, file, and maintain the microfilm files. A new procedure has been developed to describe the microfilm processing. (See Procedure 8.)

6. As the volume of the enforcement file grows (to approximately five times the current volume), automatic retrieval equipment should be reviewed as a means of speeding up the record access time.

7. The costs for materials, processing, and equipment have been computed as part of the original test. (See Exhibit 27.) A review confirmed that these estimated costs are still in effect. These costs would provide an average cost per microfilm image or per document of four cents. Based on the estimated annual volume to be microfilmed, annual operating costs are estimated to be approximately $10,000. (See Exhibit 28.)

8. The conversion processing time (Exnibit 28) has been estimated to be approximately 1,600 hours based on an estimated volume of 250,000 documents. This will require scheduled processing through the Record Center to provide ample time for the processing.

EXHIBIT 27

ESTIMATED COSTS - MICROFILM JACKETS

MATERIALS COST

Microfiche jackets	$1.07 per 1M (4 X 6)
Roll film - 16mm - 1,600 images per roll (Film cost is included in processing.)	

PROCESSING COST (Record Center)

Labor rate	$5.75 per hour
Processing - developing	$5.55 per roll
Duplicate copies of film	$3.73 per roll
Insertion in jackets (4 hrs. $5.75) (Insertion should be performed by lower-cost employees.)	$23.00 per roll

EQUIPMENT COST (Purchase)

Viewer - filler	$1,350.00
Reader - Printers 1	1,600.00
Readers only 6 @ $400	2,400.00
Storage cabinet (5 drawers with dividers)	345.00
Microfiche duplicator (fire-resistant)	1,100.00
	$6,795.00

AVERAGE COST PER IMAGE

Jackets (40 images each) $1.07 ÷ 40,000 = .002¢

Filming (6 hrs. X $5.75 ÷ 1,600) = 2.156

Processing Roll ($5.55 ÷ 1,600) = .346

Insertion in jackets
(4 hrs. X $5.75 ÷ 1,600) = 1.437

Cost per image 3.941¢

$0.04

EXHIBIT 28

MICROFILM - CONVERSION TIMING AND COST ESTIMATES

TIMING ESTIMATES

CONVERSION

250,000 documents ÷ 1,600 images = 157 rolls

157 rolls X 10 hours = 1,570 hours

(time for filming, processing, inserting)

DAILY PROCESS TIME

1,000 documents ÷ 1,600 documents per roll X 10 hrs. per roll = 6.2 hrs.

(time for filming, processing, inserting)

COST ESTIMATES

CONVERSION

66 file drawers X 24" long - 30% of capacity for lost space X 240 pieces per inch = 250,000 pieces

$0.04 per image X 250,000 pieces = $10,000

ANNUAL OPERATION COST

1,000 pieces per day X 250 working days = 250,000 pieces/year

$0.04 per image X 250,000 pieces = $10,000

SECTION VI

WISE - PROCEDURAL CONTROLS

The development of a large automated information system with its inherent sophistication and the use of new techniques require the parallel development of administrative and procedural controls. The development and the documentation of procedures benefit system users by:

- Explaining how specific functions work.
- Describing specific work tasks and forms to be used for clerical personnel.
- Providing continuity through the capability to retain documentation if personnel changes occur.
- Providing a check on the accuracy and integrity of the total system.
- Providing a training tool for other users whether in Michigan or in other states.
- Ensuring that MWRC policies are known and followed.
- Providing a central control over all input-output processing to and from the data processing department.

The major recommendation to all users resulting from the analyses and development of the various procedures is that procedural control functions should be administered from a central group. This has been accomplished in Michigan through the establishment of the Central Administrative Control (CAC) group. Other recommendations pertinent to the individual analyses and procedures are indicated in the following sub-sections:

- Administrative Control of Station Numbers.
- Administrative Control of Users' Numbers.
- Enforcement Files.
- Input Systems - OCR.
- Input Systems - Turn-around Documents.
- Input Systems - Key-to-tape.
- Procedures.

ADMINISTRATIVE CONTROL OF STATION NUMBERS

To properly develop and utilize its own water management information system and to interface with the STORET system, a state agency will find it necessary to establish stations and an associated station number code for each data collection point in the State. Station numbers and station data are coded to facilitate retrieval and reporting. Since station numbers represent the major reference to computer files and reports, the administrative control of the number assignment is very important to the accurate operation of the system.

A six-digit station number reference file is required to:

- Assign the next station number in sequence.
- Control the number assignment to avoid duplication.
- Provide a reference to the data stored in the computer.

Findings

The investigating agency's analysis covered the use of:

- Card files maintained in numeric and organization name sequence.
- Computer-printed labels to update card files.
- Various card storage devices.
- County books for station numbers. (The first two digits of each primary station number designate the county.)

The various card file methods require clerical effort for record maintenance. Computer-printed labels require an additional computer program and modification of the remote file maintenance program to print the correction labels.

The proposed system of county books involves the visual look-up of the last number assigned for that particular county. The next number in sequence is then assigned to a new request for station number. Station number assigned, and organization name and address are recorded on the station forms, and filed in the county book. File maintenance beyond the original recording is eliminated. To make this system a continuing operation, the administrative procedures and forms used have been documented. (See Procedure Number 2.)

Recommendations

It is recommended that a control function be established to process the setup sheets for new stations, and to assign the numbers as requested. Additional responsibilities would consist of controlling and reviewing the forms sent to data processing.

A computer-prepared listing of organizations in alphabetic sequence should be prepared monthly. This listing would provide reference to a station number by company name. New organizations would be added manually to the listing until the next computer print-out was received.

It is recommended that computer lists of station numbers and organizations be prepared in numeric sequence and alphabetic sequence annually. These lists would be used to perform an audit of the station numbers.

ADMINISTRATIVE CONTROL OF USER NUMBERS

User codes are assigned to provide unique identification of an industrial firm, commercial firm, or a municipality, and to identify ownership of the outfall or intake. The character structure for industrial and commercial firms appears as AM 001, where AM represents the firm name (AJAX MANUFACTURING CO.) and 001 represents the first location for that firm. The number system for municipalities is the five-digit number assigned by the U. S. Bureau of the Census.

Findings

The number for municipalities is already assigned and is subject to very few control problems. The number for industrial and commercial firms is assigned and recorded for the first time when a new station is set up. Without procedural control over the user code assignment, duplicate codes are possible.

Recommendations

The control and assignment of user codes should be the responsibility of the Central Administrative Control unit.

It is also recommended that a reference list for user codes and user names be maintained in user code sequence to provide proper assignment of the next code. The look-up and number assignment would become a part of the Station Number Control. (See Procedure Number 3.)

Procedure 1

SUBJECT: Completing Statement of New or Increased Use of Waters of the State for Waste Disposal Purposes

PURPOSE: The purpose of the statement is to present concise information on a proposed new or increased use of waters of the State for waste disposal purposes. The statement is required by Section 8(b), Act 245, Public Acts of 1929, as amended, which reads as follows:

GENERAL: Section 8(b). On and after May 18, 1949, any person requiring a new or substantial increase over and above the present use now made of the waters of the State for sewage or waste disposal purposes shall file with the Commission a written statement setting forth the nature of the enterprise or development contemplated, the amount of water required to be used, its source, the proposed point of discharge of the wastes into the waters of the State, the estimated amount so to be discharged, and a fair statement setting forth the expected bacterial, physical, chemical and other known charateristics of the wastes. Within 60 days of receipt of the statement, the Commission shall make an order stating such minimum restrictions as in the judgment of the Commission may be necessary to guard adequately against such unlawful uses of the waters of the State as are set forth in Section 6. If the order is not acceptable to the user, he may request a hearing on the matter involved, following which the Commission's final order of determination in this connection shall be conclusive unless reviewed in accordance with the provisions of the administrative procedures of Act No. 197 of the Public Acts of 1952, as amended, being Sections 24.101 to 24.110 of the Compiled Laws of 1948, or any amendment thereto, in the Circuit Court for the County of Ingham, or for the county in which the user resides, or for the county in which the use is contemplated, upon petition therefor, filed within 15 days after service upon said user of the final order of determination.

The word "person" as used herein means any individual, municipality, industry, public or private corporation, copartnership, firm, or any other entity whatsoever.

EXHIBIT 29: Statement on New or Increased Use of Waters of the State for Waste Disposal Purposes

PROCEDURE: Give name of person proposing to make the new or increased use. Give mailing address where person proposing to make the new or increased use may be reached.

1. State whether person proposing to make the new or increased use is doing so as in individual, partnership, corporation (public or private), governmental board or agency or other legal entity.

2. If person proposing to make the new or increased use is a private corporation, name state in which articles of incorporation are filed.

3. Characterize proposed enterprise on the basis of its principal function.

Example: cannery, oil refinery, chemical manufacturing, metal plating, automatic laundry, fruit or vegetable freezing, shopping center, hospital, etc.

Describe location of proposed enterprise. Be specific. Wherever possible use street or road names and numbers, and name of political subdivision (city, village, township). If necessary, attach a sketch or map showing location.

4. With respect to the location described in item 3, state whether proposed enterprise is a new development or an expansion of an existing development.

5. Water supply and use information.

Describe water supply source (well or wells, surface water, public supply). If source is surface water, give name of lake or stream involved. If source is public supply, give name of owner, i.e., city, village, township, etc. Give separate estimates of the amounts of water to be used for various purposes, i.e., manufacturing process, cooling and condensing, sanitary, etc. Amounts should be expressed in terms of time, for example: gallons per minute, hour, day, week, etc.

6. List estimated daily volume of wastes to be discharged. Indicate whether discharge is over 1 shift (8 hours), 2 shifts (16 hours), or 3 shifts (24 hours). With respect to periodic batch discharges, indicate volume and frequency.

7. Describe point or points of waste discharge. If discharge is to public sewer, give name of owner and state whether sewer is of the sanitary, storm or combined type. If discharge is to county or intercounty drain, give name of drain and state whether it is open or closed. (Information on drains may be obtained from appropriate county drain commissioner.)

EXHIBIT 29

STATE OF MICHIGAN

WATER RESOURCES COMMISSION

STATEMENT ON NEW OR INCREASED USE OF WATERS OF THE STATE FOR WASTE DISPOSAL PURPOSES

Name ______________________________

Address ______________________________

1. Type of legal entity ______________________________
   (individual, partnership, corporation)

2. State of incorporation ______________________________

3. Nature and location of enterprise ______________________________

4. Development contemplated ______________________________
   (expansion, new development)

5. Water requirements:

Source	Amount	Use

6. Type and daily volume of wastes to be discharged:
   a. Process waste ______________________________
   b. Cooling and condensing water ______________________________
   c. Sanitary sewage ______________________________
   d. Other ______________________________

7. Proposed points of waste discharge: (Municipal sewer, county drain, lake, river, leaching pit or injection well, etc. Give name of drain, lake or river.)
   a. Process waste ______________________________
   b. Sanitary sewage ______________________________
   c. Cooling and condensing water ______________________________

EXHIBIT 29
Continued

8. Expected Characteristics of Wastes:

	Process Waste	Cooling and Condensing	Sanitary Sewage	Other
a. Bacterial				
b. Physical				
c. Chemical				
d. Other				

9. Description of treatment or control facilities (if applied to accomplish waste characteristics set forth in paragraph 8). If discharge is to underground by injection well, complete data as to depth and diameter of well, materials and details of construction, date of drilling, screen data and proposed operations of injection well should be included on fly sheet with this statement and question No. 11 should be completed.

____

____

____

____

10. Proposed date of completion of disposal facility ________________

11. Distance from nearest private well is ______________ feet.

Distance from nearest municipal well is ______________ feet.

12. If leaching pit or oxidation pond is proposed, distance to nearest surface-water course is ______________ feet. (Complete question No. 11 also.)

Submitted in accordance with Section 8b, Act 245, Public Acts of 1929, as amended by Act 117, Public Acts of 1949.

Date __________________________

____

____
Signature

**If signed by an agent, authorization therefore must accompany this statement. If a partnership, all partners must sign.

If discharge is to surface water, give name of receiving stream or lake. If discharge is to underground waters through an injection well, complete Item 9.

8. List significant bacterial, physical, or chemical waste characteristics.

Example: color, turbidity, temperature, biochemical oxygen demand, chemical oxygen demand, toxic components, alkalinity or acidity, taste- and odor-producing components, radioactivity, etc.

9. Self-explanatory.

10. Self-explanatory.

11. Self-explanatory.

12. Self-explanatory.

* * * *

Procedure 2

SUBJECT: Request for Station Number

PURPOSE: To document the procedure for requesting a primary station number for new water users.

GENERAL: Requests are usually filed by the District Engineer when new firms are formed or expanded.

EXHIBIT 30: Sample Request for Station Number

PROCEDURE:

District Engineer

1.1 Fill in the form 'Request for Station Number' as completely as possible. Indicate:

- Company name
- Street address
- City or town
- Product or service produced
- Manufacturing processes
- Primary number (if already assigned)
- Secondary number (if already assigned)
- SIC Code number
- Descriptions and locations of outfalls

SAMPLE REQUEST FOR STATION NUMBER

EXHIBIT 30

COMPANY NAME XYZ CORP.

PRIMARY NUMBER

STREET ADDRESS 1938 EAST AVENUE

CITY DETROIT, MICHIGAN 48881

SECONDARY NUMBER

PRODUCT

ELECTROPLATED PARTS FOR AUTOMOTIVE AND AERONAUTIC TRADE

S.I.C. CODE NO.

MANUFACTURING PROCESS OR PROCESSES

PLATING - BRASS, CADIUM, CHROMIUM, COPPER, NICKEL, ZINC.

	DESCRIPTIONS AND LOCATIONS OF OUTFALLS	OUTFALL NO
1	30-INCH CONCRETE PIPE COOLING WATER DISCHARGE TO MILL CREEK LOCATED 1,050 FEET DOWNSTREAM FROM U.S. HIGHWAY BRIDGE ON RIGHT BANK.	
2	24-INCH PVC PIPE, PLATING LINE TO MILL CREEK, LOCATED 2,000 FEET DOWNSTREAM FROM U.S. 99 HIGHWAY BRIDGE ON RIGHT BANK.	
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

1.2 It is very important to know the manufacturing process, the size of the outfall (e.g., pipe size), and the type of waste water discharge. (See sample form, Exhibit 30.)

1.3 The primary number will only be known for an existing station where new outfalls are designated.

1.4 Forward the forms to Central Administrative Control for new station coding and set-up.

Station Number Control

2.1 After receiving and checking the request form for completeness, fill out the set-up sheets for the STORET and WISE system, and process the request. (See Station Number Control, Exhibit 31.)

* * * *

Procedure 3

SUBJECT: Station Number Control

PURPOSE: To document the procedures for assigning and maintaining control over new station numbers.

GENERAL: The station number reference file will be maintained in six-digit station code. The numeric station number reference will include numbers for the WISE and the STORET systems.

Reference to company names is derived from the alphabetic MWRC Station List. This list will not include the STORET stations. The alphabetic list will be prepared monthly from the computer. (See Exhibit 35.)

EXHIBITS:
- 31 Flow Chart
- 30 Request Form
- 32 New Station Set-up Sheet
- 33 User Information and Station Data Form
- 34 MWRC Station Numbers Sheet
- 35 MWRC Station List

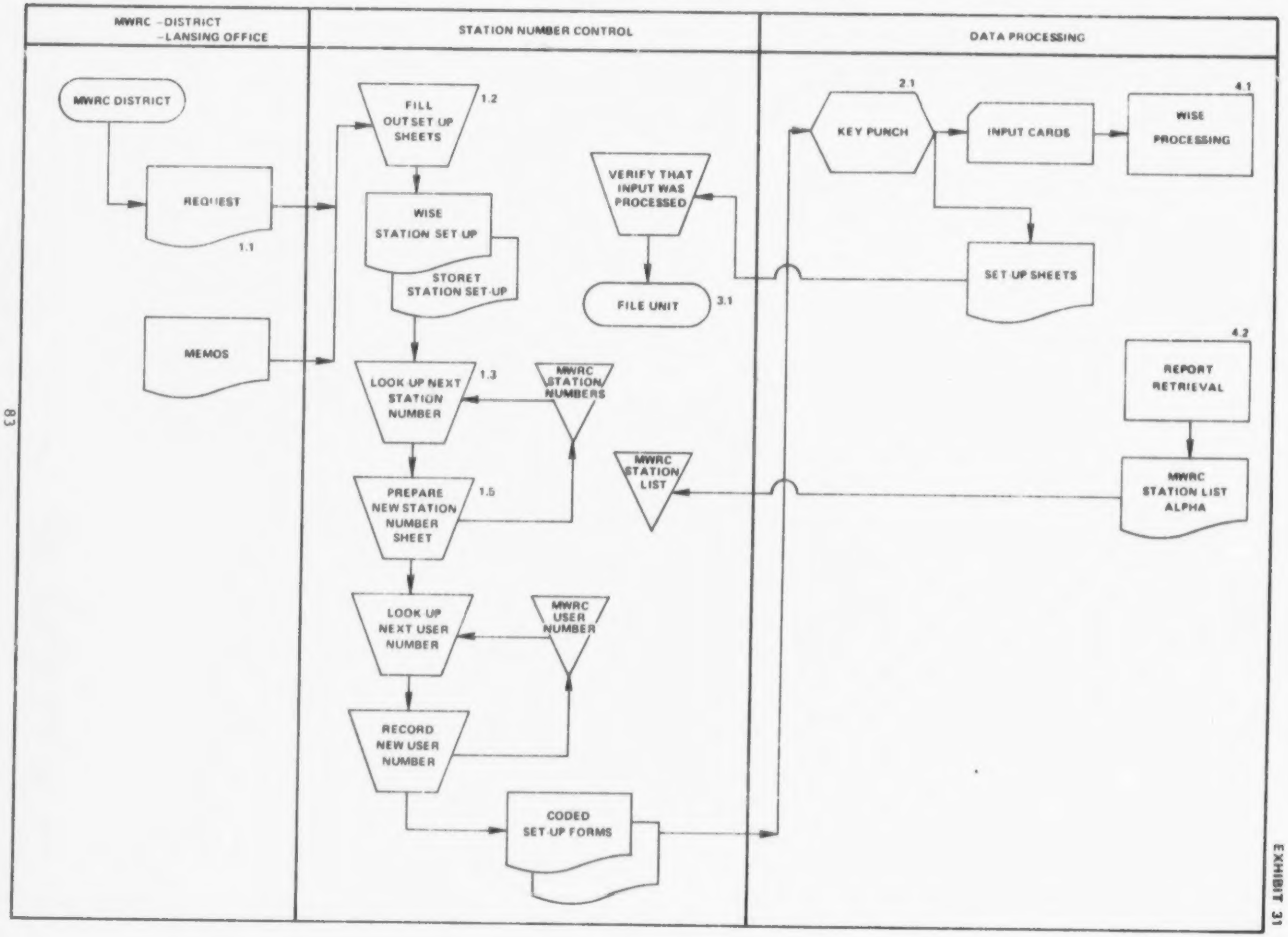
PROCEDURE:

Station Number Control

1.1 Memos and Request Forms (Exhibit 30) requesting that new stations be set up are received in the MWRC Lansing office from MWRC district offices and from investigations that disclose a need for a new station.

EXHIBIT 31

STATION NUMBER CONTROL FLOW CHART


MWRC -DISTRICT
-LANSING OFFICE
STATION NUMBER CONTROL
DATA PROCESSING
MWRC DISTRICT
REQUEST
1.1
MEMOS
FILL OUTSET UP SHEETS
1.2
WISE STATION SET UP
STORET STATION SET-UP
LOOK-UP NEXT STATION NUMBER
1.3
MWRC STATION NUMBERS
PREPARE NEW STATION NUMBER SHEET
1.5
LOOK UP NEXT USER NUMBER
MWRC USER NUMBER
RECORD NEW USER NUMBER
CODED SET-UP FORMS
VERIFY THAT INPUT WAS PROCESSED
FILE UNIT
3.1
MWRC STATION LIST
KEY PUNCH
2.1
INPUT CARDS
WISE PROCESSING
4.1
SET-UP SHEETS
REPORT RETRIEVAL
4.2
MWRC STATION LIST ALPHA

NEW STATION SET-UP SHEET
MONTHLY PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

1.0	STA NO	CORP OR ORG NAME	OFFICER RESPONSIBLE
1.1		STREET ADDRESS	CITY-STATE-ZIP
2.0		MAILING NAME	ATTENTION OF
2.1		STREET ADDRESS	CITY-STATE-ZIP

					O						
6.0		DIS REGION	MAJ RIVER	MIN RIVER	TERM BASIN	P	USE TYPE	ORGAN NUMBER	PT	ORG NAME TO APPEAR ON REPORT	MO YR DATE
6.1										ORG NAME-CONTINUED	
7.0										OUTFALL NAME TO APPEAR ON REPORT	

				ORDER LIMITS			
	ORDER NUMBER	PARM NUMBER	PARAMETER NAME	R	AVERAGE	R	LIMITS
8.0							
8.0							
8.0							
8.0							
8.0							
8.0							
8.0							
8.0							
8.0							
8.0							

EXHIBIT 33

FWPCA STORET SYSTEM
DIVISION OF POLLUTION SURVEILLANCE
USER INFORMATION & STATION DATA
REQUIRED FOR STORAGE AND CHANGES

AGENCY CARD

AGENCY (USER) CODE ☐☐☐☐☐☐☐☐ 1 8 — BLANK 9-16

UNLOCKING KEY ☐☐☐☐☐☐☐☐ 17 24

USER NAME, LOCATION , PROJECT, ETC. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ 25 42

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ 43 61

DEPTH-FEET (F) OR METERS (M) ☐ 62

STORE CODE ☐☐☐ 63 65

STATION TYPE ☐☐☐☐☐☐☐☐ 66 73

UNLOCKING DATE YEAR ☐☐ 74 75 MO. ☐☐ 76 77

CONTROL CODE ☐☐ 78 79 — A 80

STATION CARD

SEQUENCE NUMBER ☐☐☐ 1 3

PRIME STATION CODE ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ * 4 18 — BLANK 19-33

(1) SECONDARY STATION CODE ☐☐☐☐☐☐☐☐☐☐☐☐ * 34 45

(2) SECONDARY STATION CODE ☐☐☐☐☐☐☐☐☐☐☐☐ * 46 57

(3) SECONDARY STATION CODE ☐☐☐☐☐☐☐☐☐☐ * 58 67

* LEFT JUSTIFY

STATE CODE ☐☐ 68 69

COUNTY ☐☐☐ 70 72

CITY ☐☐☐☐☐ 73 77

☐☐ 78 79 CONTROL CODE — S 80

1.2 Fill in the proper information on the set-up sheets (Exhibits 32 and 33) for the WISE and the STORET system.

1.3 Look up the last number in sequence within the county for that station.

1.4 Assign the next number in sequence to the new station and record that number on the set-up sheets.

1.5 Prepare a new MWRC Station Number sheet (Exhibit 34) for the station number index file, and file in proper sequence.

1.6 Look up the last user number from the user number reference list. Use the next number in sequence as the user number. (If this is a new firm, the number will be developed by reviewing the reference list for that alpha name and coding the prefix digits from the user name.) An example would be: AJAX MANUFACTURING CO. = AM 001.

1.7 Record the user number, user name, location, and station number on the user number reference list. (Exhibit 35)

1.8 Forward the set-up sheets to data processing.

Data Processing

2.1 Key punch the input cards for the WISE and STORET systems.

2.2 Return the set-up sheets to station number control.

Station Number Control

3.1 Verify that input cards were punched.

3.2 Send the set-up sheets to the File Unit for filing.

Data Processing

4.1 Prepare a monthly listing of organization names in alphabetic sequence. (Exhibit 35)

* * * *

Procedure 4

SUBJECT: Station Number Audit

PURPOSE: To provide a method for verifying the manual index file against the computer print-outs for accurate station numbers.

EXHIBIT 34

MWRC STATION NUMBERS

PRIMARY	SECONDARY	DESCRIPTION	STORET STATION SET-UP		
			REQ'D.	DOC. COMP.	DATE CONF.

EXHIBIT 35

MWRC – STATION LIST

USER NUMBER	USER NAME	USER LOCATION	STATION
AM 001	AJAX MFG. CO.	BALDWIN, MICH	280021
AM 002	AJAX MFG. CO.	REED CITY, MICH	280022
AN 001			
AN 002			
AO 001			
AP 001			
AQ 001			

EXHIBITS: 36 Annual Station Number Audit
37 MWRC Station List - Alphabetic Sequence

Data Processing

1.1 Prepare computer listing for an alpha station list and a numeric station list.

1.2 Forward the computer listing to station number control.

Station Number Control

2.1 Verify the station numbers and station data against the index files.

2.2 For records in error, fill out a correction sheet and forward to data processing for key punching.

2.3 The processing will then follow the same steps as for new station input.

* * * *

Procedure 5

SUBJECT: Enforcement File Processing

PURPOSE: To document the method for clerical handling and microfilming of MWRC Enforcement Files.

POLICY: Microfilm jackets can only be updated or removed by the authorized file control supervisor.

EXHIBITS: 38 Flow Chart - Microfilm Enforcement Files Maintenance
39 Flow Chart - Microfilm Enforcement Files Data Retrieval
40 Sample Microfilm Jacket
41 Microfilm Batch Control

PROCEDURES:

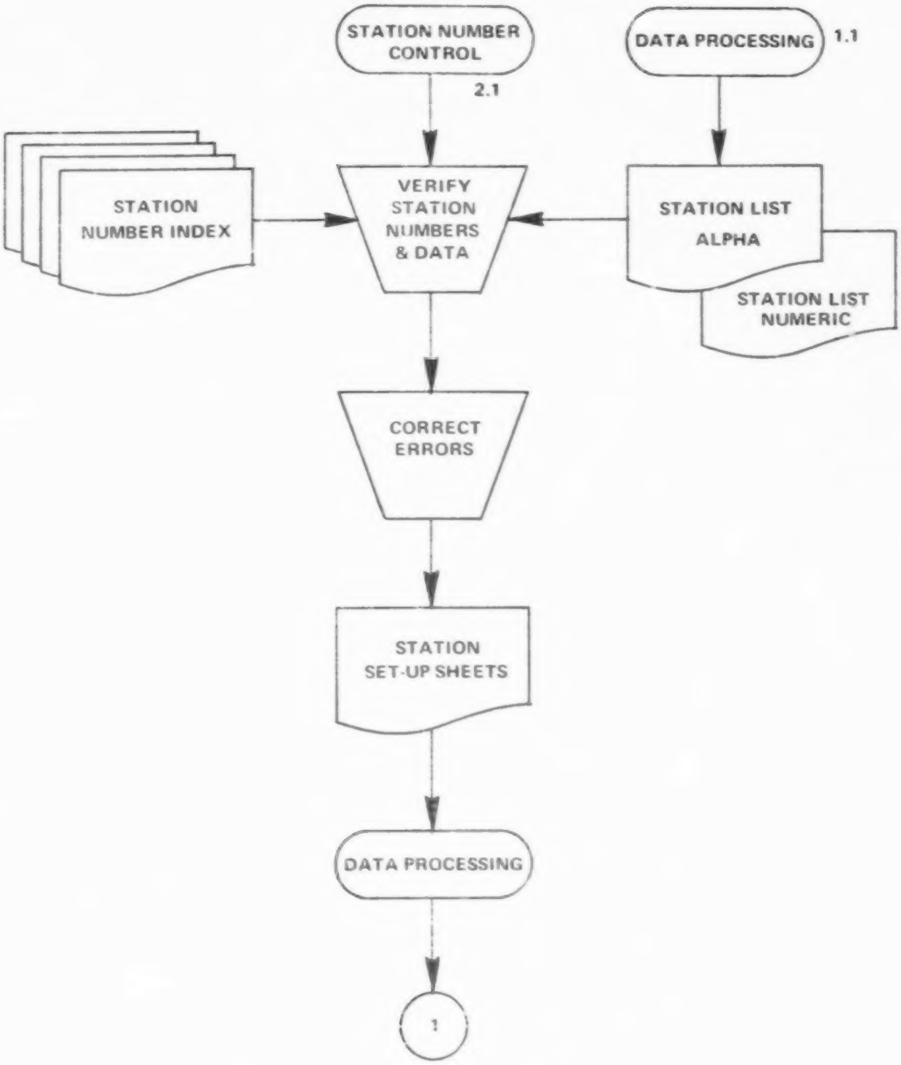
MWRC Department

1.1 Documents, correspondence, blueprints, station action forms, and industrial operating reports are received daily by the various sections of the MWRC.

1.2 After departmental processing of each form or document, the paperwork to be filed is sent to the File Unit to prepare for microfilming.

ANNUAL STATION NUMBER AUDIT

EXHIBIT 36


STATION NUMBER CONTROL
2.1
DATA PROCESSING
1.1
STATION NUMBER INDEX
VERIFY STATION NUMBERS & DATA
STATION LIST ALPHA
STATION LIST NUMERIC
CORRECT ERRORS
STATION SET-UP SHEETS
DATA PROCESSING
1

MWRC STATION LIST – ALPHABETIC SEQUENCE

DATE 99/99/99

NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	
NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	
NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	
NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	
NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	
NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	
NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	
NAME	P–NO. ________	NAME	P–NO. ________	NAME	P–NO. ________
ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________	ADDRESS	SEC. NO. ________
CITY, STATE		CITY, STATE		CITY, STATE	

EXHIBIT 37

MICROFILM ENFORCEMENT FILES

FILE MAINTENANCE

EXHIBIT 38

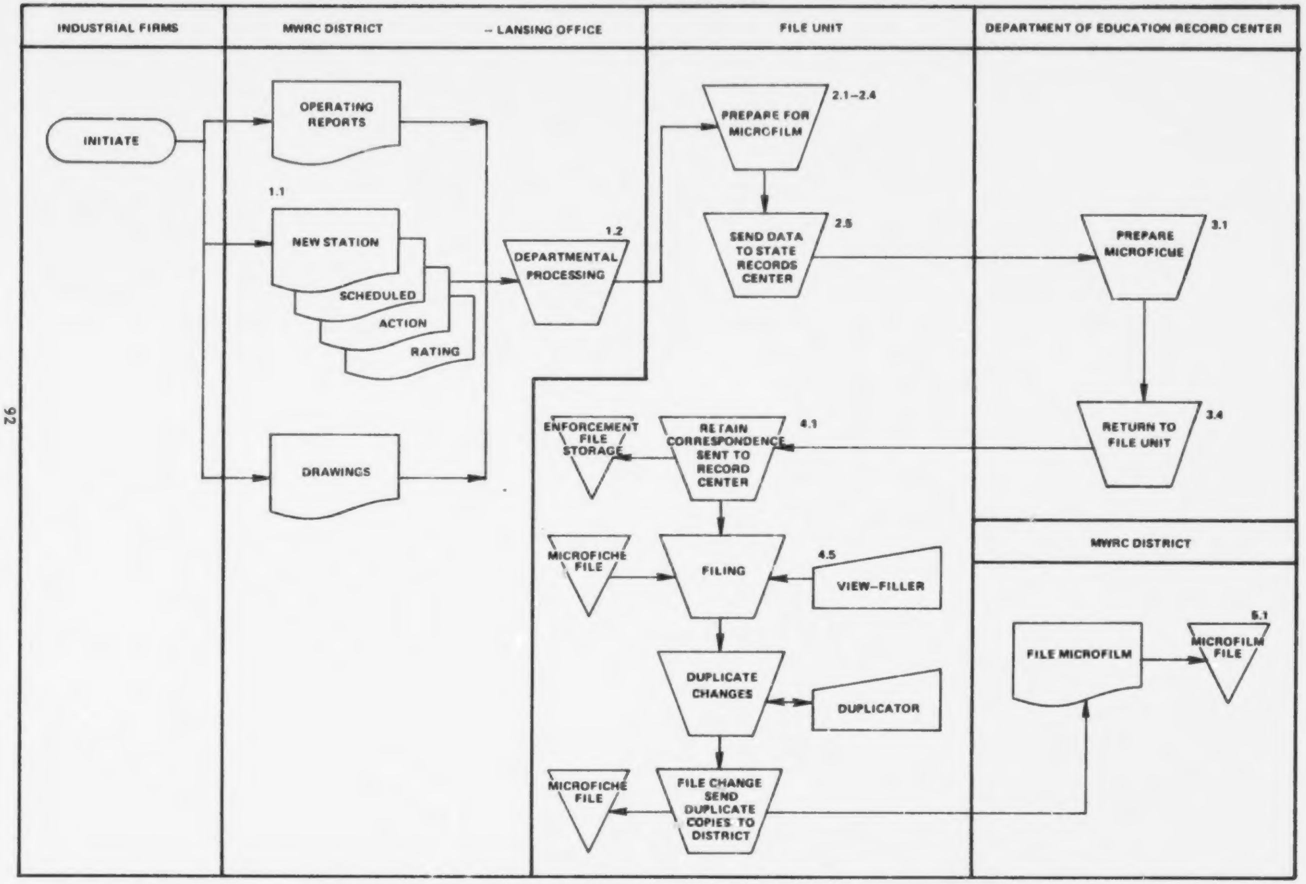

INDUSTRIAL FIRMS
MWRC DISTRICT
– LANSING OFFICE
FILE UNIT
DEPARTMENT OF EDUCATION RECORD CENTER
INITIATE
OPERATING REPORTS
1.1
NEW STATION
SCHEDULED
ACTION
RATING
DRAWINGS
1.2
DEPARTMENTAL PROCESSING
2.1–2.4
PREPARE FOR MICROFILM
2.5
SEND DATA TO STATE RECORDS CENTER
3.1
PREPARE MICROFICHE
3.4
RETURN TO FILE UNIT
ENFORCEMENT FILE STORAGE
4.1
RETAIN CORRESPONDENCE SENT TO RECORD CENTER
MICROFICHE FILE
FILING
4.5
VIEW–FILLER
DUPLICATE CHANGES
DUPLICATOR
MICROFICHE FILE
FILE CHANGE SEND DUPLICATE COPIES TO DISTRICT
MWRC DISTRICT
FILE MICROFILM
5.1
MICROFILM FILE

EXHIBIT 39

MICROFILM ENFORCEMENT FILES

DATA RETRIEVAL

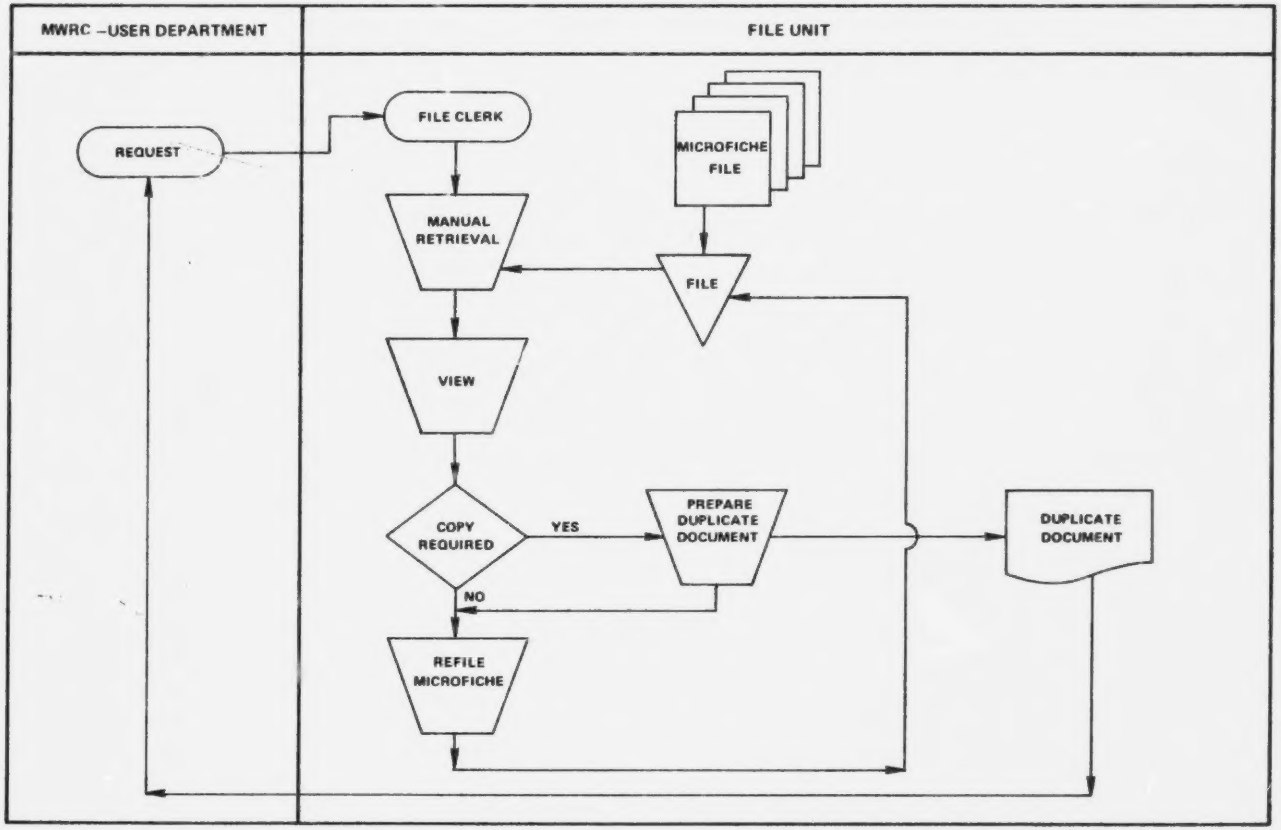
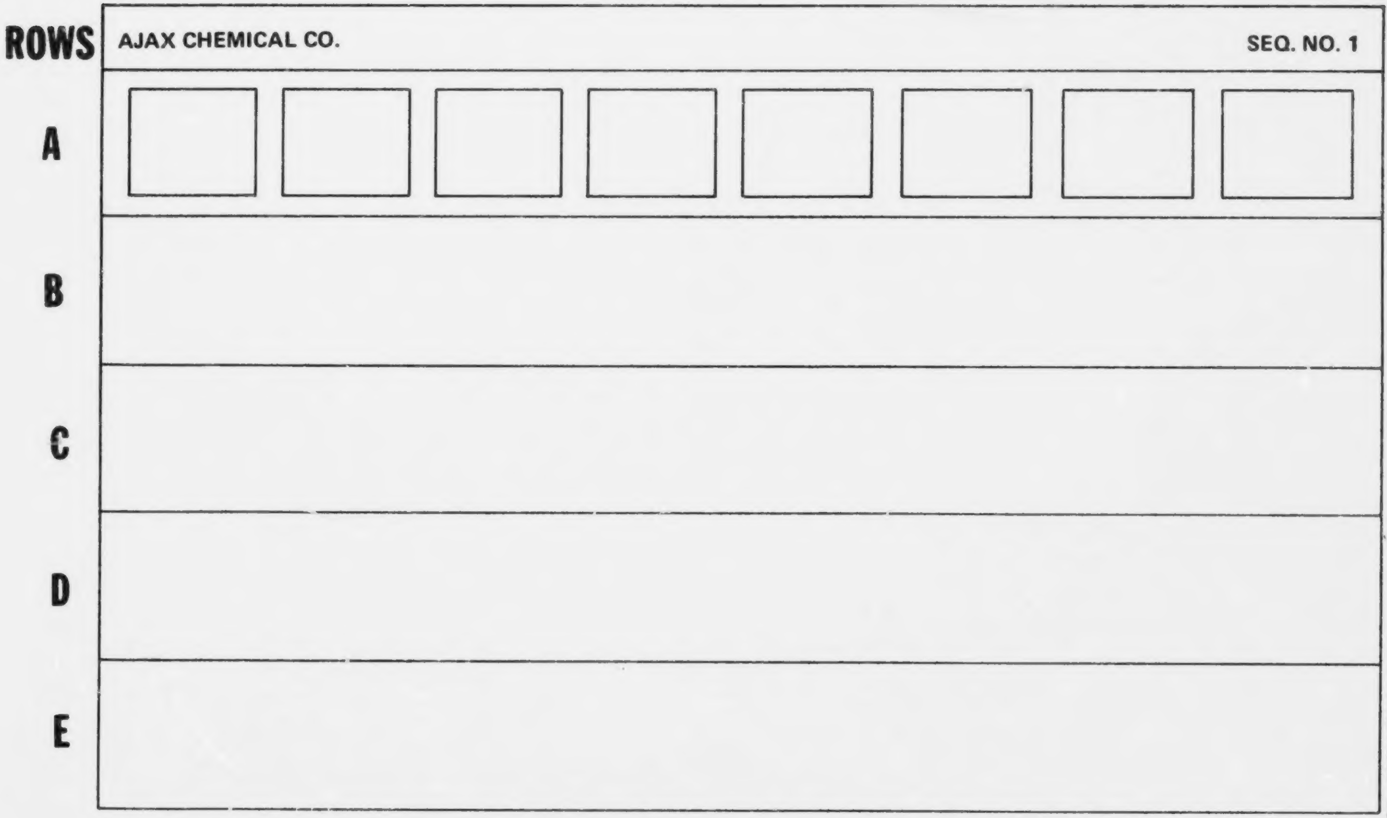

MWRC –USER DEPARTMENT
FILE UNIT
REQUEST
FILE CLERK
MICROFICHE FILE
MANUAL RETRIEVAL
FILE
VIEW
COPY REQUIRED
YES
NO
PREPARE DUPLICATE DOCUMENT
DUPLICATE DOCUMENT
REFILE MICROFICHE

EXHIBIT 40

MICROFILM JACKET


ROWS
AJAX CHEMICAL CO.
SEQ. NO. 1
A
B
C
D
E

5 ROWS X 8 IMAGES = 40 IMAGES PER JACKET

EXHIBIT 41

MICROFILM BATCH CONTROL

DATE SENT	BATCH NUMBER	DATE RETURNED	

File Unit

2.1 Remove all paper clips, staples, and arrange the documents, face up.

2.2 Sort the documents alphabetically by district.

2.3 Place the district media in separate envelopes for handling at the Record Center.

2.4 Number the batches and record the current date and batch number on a batch control sheet. (Exhibit 41)

2.5 Forward the batches to the Record Center via interoffice mail.

Record Center

3.1 Microfilm the documents received on separate rolls for each district.

3.2 Label the rolls with district number, date, batch number.

3.3 Return microfilm rolls and documents to the File Unit.

File Unit

4.1 Check off batch number received back from the Record Center. Review the monthly batch control sheet to make sure that all batches have been received.

4.2 Retain the correspondence media in sequence by date for 3 months. After that, the correspondence should be forwarded to the Record Center for retention.

4.3 Process the microfilm through the reader-filler, and insert and update appropriate jackets. Jackets are visually retrieved from the files.

4.4 Code each new jacket with the name of the industrial company or municipality, etc., and the sequence number of that jacket within its file.

4.5 When all of the daily microfilming insertion has been completed, duplicate the jackets that have been updated.

4.6 Send the duplicate jackets to the individual districts for their files.

4.7 Refile the master microfilm jackets in alphabetic sequence.

District Office

5.1 Check the dates to establish that all microfilm is received in batch number sequence.

5.2 File the microfilm jackets in alphabetic sequence, removing the jackets that were replaced.

5.3 Code new jackets with the name of the file and the sequence number of that jacket within its file.

* * * *

Procedure 6

SUBJECT: Operating Report Processing

PURPOSE: To document the clerical handling, checking, and routing of the Monthly Operating Report.

GENERAL: The Monthly Operating Reports are prepared by the computer and mailed to industrial, commercial, and municipal organizations for recording water quality measurements. The Certified Operators record the measurements for parameters that are unique to their plant and return the forms to the MWRC on a monthly basis.

EXHIBITS:
42 Flow Chart
43 INFORM Correction Form
44 and 45 Monthly Operating Report (INFORM)
46 Certified Operator Letter

PROCEDURES:

Clerical - Mail Processing

1.1 Open the daily mail as received, remove the forms, maps, and correspondence for processing.

1.2 Ensure that station numbers are recorded on maps, correspondence and accompanying forms. Write station numbers on accompanying material, if not already recorded.

1.3 Separate all miscellaneous documents from the operating reports and stack for further processing.

1.4 Set the time stamp to the current date and stamp each report in the upper left corner. Verify that the sequence number is printing for each document.

1.5 A separate time stamp without the sequence number feature should be used to stamp the miscellaneous documents.

1.6 Forward the miscellaneous documents to the MWRC, Supervisor of Data Processing Unit, for review and further processing.

EXHIBIT 42

FLOW CHART
OPERATING REPORT PROCESSING

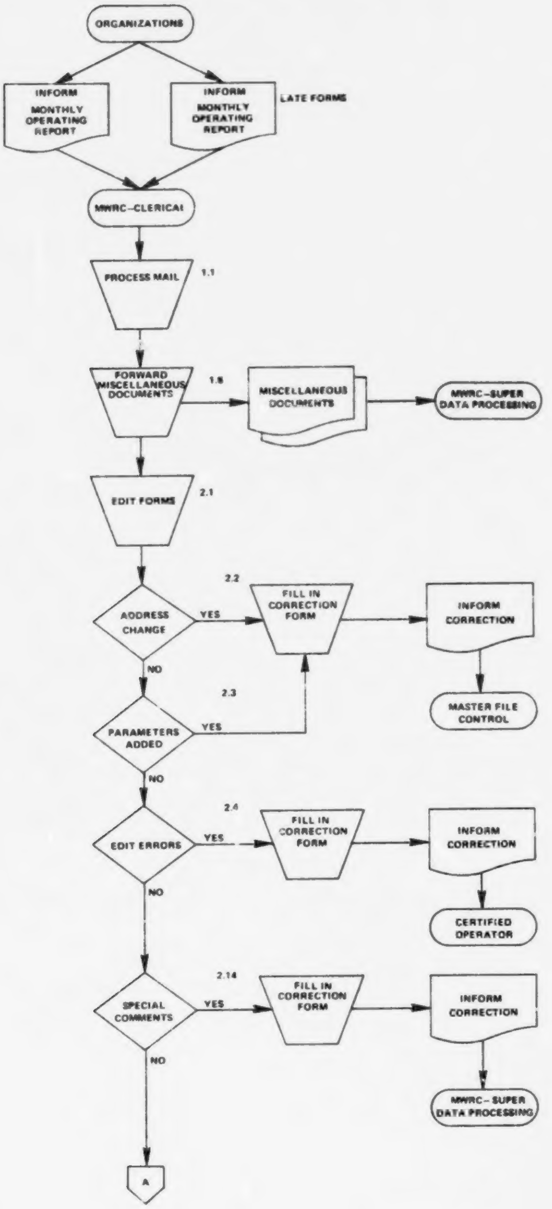

ORGANIZATIONS
INFORM MONTHLY OPERATING REPORT
INFORM MONTHLY OPERATING REPORT
LATE FORMS
MWRC–CLERICAL
PROCESS MAIL
1.1
FORWARD MISCELLANEOUS DOCUMENTS
1.8
MISCELLANEOUS DOCUMENTS
MWRC–SUPER DATA PROCESSING
EDIT FORMS
2.1
2.2
ADDRESS CHANGE
YES
NO
FILL IN CORRECTION FORM
INFORM CORRECTION
MASTER FILE CONTROL
2.3
PARAMETERS ADDED
YES
NO
2.4
EDIT ERRORS
YES
NO
FILL IN CORRECTION FORM
INFORM CORRECTION
CERTIFIED OPERATOR
2.14
SPECIAL COMMENTS
YES
NO
FILL IN CORRECTION FORM
INFORM CORRECTION
MWRC–SUPER DATA PROCESSING
A

EXHIBIT 42 continued

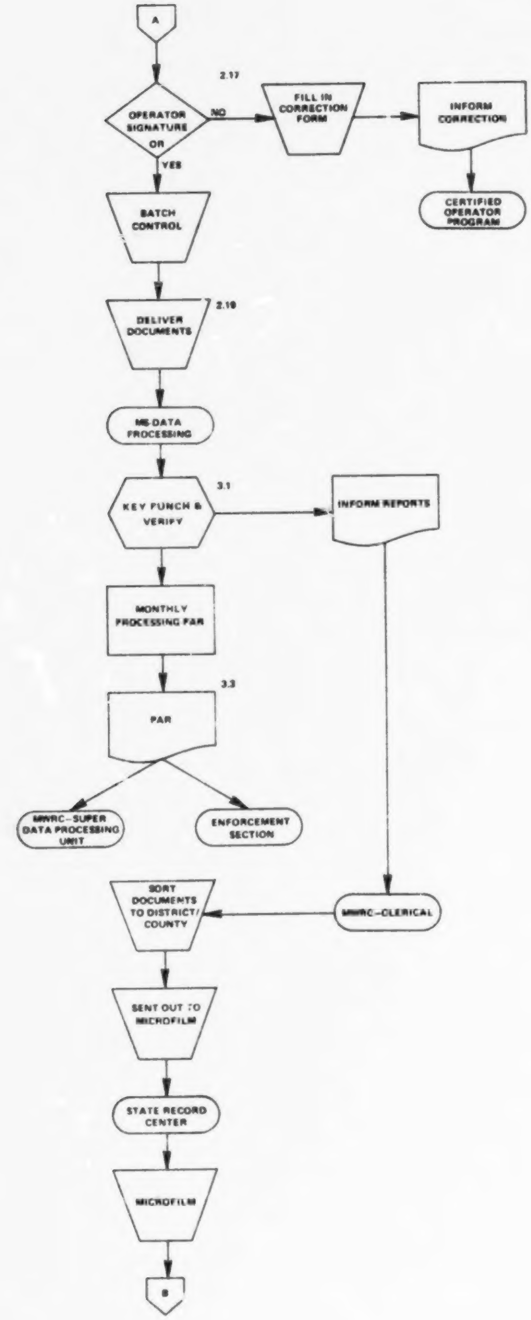
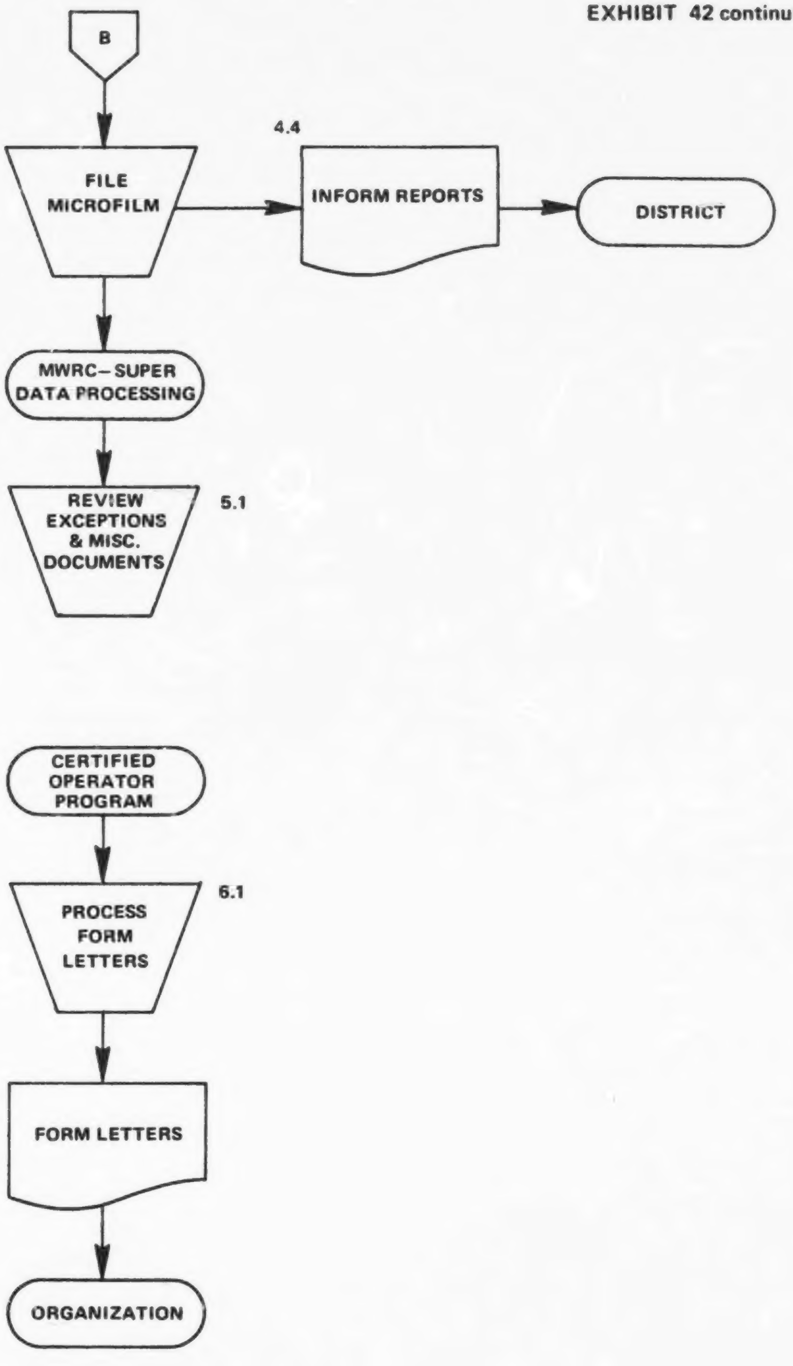

A
2.17
OPERATOR SIGNATURE OR
NO
YES
FILL IN CORRECTION FORM
INFORM CORRECTION
CERTIFIED OPERATOR PROGRAM
BATCH CONTROL
2.19
DELIVER DOCUMENTS
MS-DATA PROCESSING
3.1
KEY PUNCH & VERIFY
INFORM REPORTS
MONTHLY PROCESSING PAR
3.3
PAR
MWRC–SUPER DATA PROCESSING UNIT
ENFORCEMENT SECTION
SORT DOCUMENTS TO DISTRICT/ COUNTY
MWRC–CLERICAL
SENT OUT TO MICROFILM
STATE RECORD CENTER
MICROFILM
B

EXHIBIT 42 continued


B
FILE MICROFILM
4.4
INFORM REPORTS
DISTRICT
MWRC– SUPER DATA PROCESSING
REVIEW EXCEPTIONS & MISC. DOCUMENTS
5.1
CERTIFIED OPERATOR PROGRAM
PROCESS FORM LETTERS
6.1
FORM LETTERS
ORGANIZATION

Clerical - Form Editing

2.1 Verify that month and year are recorded in the space at the top of the form.

2.2 If changes are indicated in the organization or outfall address, fill in an INFORM Correction Form and forward the report and the correction form to the master file control analyst.

2.3 If new water quality parameters are added to the report, fill in an INFORM Correction Form and forward both documents to the master file control analyst.

2.4 Where parameters measurements are not recorded for daily overall or monthly summary, the parameter should be crossed out and the monthly summary space lined through, to indicate that key punching is not required for that parameter.

2.5 Verify that unit measurements for UG/L have a minimum value of 10.

2.6 Where flow rate measurements are recorded, the maximum should not be greater than 50 million gallons daily.

2.7 Verify that the highest and lowest daily readings are recorded under Month Summary High and Low.

2.8 Verify that a monthly average is recorded under Month Summary Average.

2.9 Verify that the monthly average is between the high and low for that parameter.

2.10 Verify that the monthly average is recorded with a decimal point, e.g., .049, 4.9, 49.

2.11 Verify that the number of determinations is greater than 0 and equal to or less than 99.

2.12 Verify that a beginning and ending date is recorded with an elapsed time of 30 days between dates.

2.13 Dates must be recorded as a six-digit field (01 07 71) on the bottom of INFORM report.

2.14 Where comments from the certified operator are recorded on the back of the INFORM document, mark an "X" in the upper right hand corner as an indication to the microfilm operator to microfilm the back of the document.

2.15 If errors are noted, fill in an INFORM Correction Form (Exhibit 43) and send the correction form to the certified operator.

INFORM CORRECTION FORM

EXHIBIT 43

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES

STATION NUMBER XXXXXX
OUTFALL ADDRESS

DEAR SIR:

WE HAVE RECEIVED YOUR MONTHLY OPERATING REPORT FOR THE MONTH OF ____________________ AND HAVE NOTED THE FOLLOWING ERRORS. THE ERRORS HAVE BEEN CORRECTED TO ALLOW PROCESSING OF YOUR REPORT.

VERY TRULY YOURS
MICHIGAN WATER RESOURCES COMMISSION

INFORM CORRECTIONS

☐ ADDRESS CHANGE
☐ PARAMETERS CHANGED, ADDED
☐ PARAMETERS NOT REPORTED
☐ UNIT MEASUREMENT ERROR
☐ NO MONTHLY AVERAGE
☐ HIGH & LOW NOT RECORDED
☐ MONTHLY AVERAGE, NO DECIMAL
☐ NO DETERMINATIONS, ERROR

☐ BEGIN-ENDING DATE ERROR
☐ DATES RECORDED IN ERROR
☐ FORM RETURNED, NOT DELIVERED, CHECK ADDRESS & REMAIL
☐ SPECIAL COMMENTS
☐ NO CERTIFIED OP. SIGNATURE

MWRC – INTERNAL ACTIONS

☐ CERTIFIED OPERATOR PROGRAM
☐ SUPER–DATA PROCESSING UNIT
☐ MASTER FILE CONTROL
☐ ENFORCEMENT SECTION

2 PART
CARBON

2.16 For INFORM documents with comments, fill in in INFORM Correction Form and forward it to the MWRC, Supervisor of Data Processing Unit.

2.17 Verify that a Certified Operator signature is present and is recorded on the Certified Operator list. If a signature is not present or is not recorded on the master list, fill in an INFORM Correction Form and forward the form to the Certified Operator Program analyst.

2.18 Process all INFORM documents through batch control as described in Procedure 9.

2.19 Deliver the INFORM documents on a daily basis to the MS-Data Processing Unit.

MS-Data Processing

3.1 Check batches received, key punch, and key verify the INFORM cards. Hold the cards for the monthly processing of the PAR program.

3.2 Return the INFORM documents to the MWRC, Clerical Unit.

3.3 When the Monthly Performance and Action Report (PAR) is processed, forward copies to the Enforcement Section and to the MWRC, Supervisor of Data Processing Unit.

Clerical

4.1 Accept INFORM documents back from the MS-Data Processing Department. Hold the documents for monthly microfilming.

4.2 Once a month, sort the INFORM documents into sequence by district number and county number.

4.3 Send the INFORM documents to the State Record Center for microfilming. If any of the documents are late from a previous month, they should be added to the previous month's microfilm roll.

4.4 When the documents and microfilm are returned, send the INFORM documents to each district office and retain the microfilm in the file.

MWRC - Supervisor of Data Processing Unit

5.1 Review the INFORM documents with special comments and take appropriate actions.

5.2 Review the miscellaneous correspondence, maps, and take appropriate actions.

5.3 Review the Monthly Performance and Action Report (PAR). (See Exhibit 17.) Provide additional information to the Enforcement Section as requested.

MONTHLY OPERATING REPORT FOR ____________ ____________
MONTH YEAR

FLY ROD AND REEL CORP.
CHIEF EXECUTIVE OFFICER
111 N. REACH BLVD.
MUSKEGON, MICHIGAN 44444

REEL PLANT NO. 1
JOE LINE
111 S. REACH BLVD.
S. MUSKEGON, MICHIGAN 44445

THIS IS YOUR MONTHLY REPORT FORM FOR

SEE REVERSE SIDE FOR RETURN MAIL

TO: STATE OF MICHIGAN
WATER RESOURCES COMMISSION

Please complete and sumbit one copy of this form at the end of each month. This report must reach our Lansing office by the 6th of the month.

54IN COOLING WATER OUTFALL
FLY ROD AND REEL CORP.
REEL PLANT NO. 1

If data is collected once daily, enter the value as a DAILY AVERAGE. If data is collected more frequently, compute the DAILY AVERAGE (arithmetic) and record it. In addition record the highest value and lowest value found each day. Coliform data, if reported, should be a geometric average. Please use units specified. At end of month compute the Monthly Average and record as MONTH SUMMARY.

STATION NUMBER: 610001

ORDER NO. PARAM. NO.	(9-13) 11111 (14-18) 00720			(9-13) 11111 (14-18) 01025			(9-13) 11111 (14-18) 01040			(9-13) 11111 (14-18) 50050			(9-13) (14-18)			(9-13) (14-18)			(9-13) (14-18)		
NAME UNITS	CYANIDE MG/L			CADMIUM UG/L			COPPER UG/L			FLOW MGD. MGD											
STD.	0.05	0.15		5	10		15	30		0.08	0.10										
DATE	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW	☒ DAILY AVERAGE	HIGH	LOW
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
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22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
MONTH SUMMARY	(56-64)	☒	☒	(56-64)	☒	☒	(56-64)	☒	☒	(56-64)	☒	☒	(56-64)	☒	☒	(56-64)	☒	☒	(56-64)	☒	☒
	MONTH (75-76)	DAY (77-78)	YEAR (79-80)	DUP PUNCH 75-80			DUP PUNCH 75-80			DUP PUNCH 75-80			DUP PUNCH 75-80			DUP PUNCH 75-80			DUP PUNCH 75-80		

SIGNATURE OF CERTIFIED OPERATOR ______________________________

CERTIFICATION NUMBER 23456789ZY

EXHIBIT 44

EXHIBIT 45

REVERSE SIDE OF MONTHLY OPERATING REPORT (INFORM)

FOLD HERE THIRD

PLACE
FIRST CLASS
STAMP HERE

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
COMPREHENSIVE STUDIES SECTION
STEVENS T. MASON BUILDING
LANSING, MICHIGAN 48926

FOLD HERE SECOND

Certified Operator Program

6.1 Review the INFORM Correction Form for signature errors. Verify that the signature is that of a registered Certified Operator.

6.2 Mail a form letter to the organization to request clarification of their certified operator personnel status. (Exhibit 46)

Master File Control - Analyst

7.1 Fill in the appropriate new station documents as INFORM documents are received. New station documents are processed according to Procedure 3.

7.2 Return the INFORM documents to the clerical unit for processing.

* * * *

Procedure 7

SUBJECT: Control of Manual Files

PURPOSE: To provide a procedure for controlling the retrieval and removal of individual files from the Central Enforcement Files.

EXHIBIT: 47 Request For File Form
48 Out-File Card

PROCEDURES:

Control of Manual Files - File Unit

1.1 All inquiries to remove individual files, review documents, or remove individual documents must be directed to the File Control Clerk.

1.2 Inquiries for removal of files or documents must be accompanied by a Request For File Form (Exhibit 47).

1.3 This form will indicate the following:

File name
Document name
Date requested
Date file due
Length of time file is required
Requestor department
Requestor name

EXHIBIT 46

CERTIFIED OPERATOR LETTER

DEPARTMENT OF NATURAL RESOURCES

ORGANIZATION NAME

NAME - ATTENTION OF

ADDRESS

CITY, STATE, ZIP

Dear Sir:

We have received your Monthly Operating Report for the month of _________. The certified operator signature is

☐ in error according to our registration records

or

☐ missing

Please furnish information regarding your certified operators names. Send this information to:

Michigan Water Resources Commission
Stevens T. Mason Building
Lansing, Michigan 489__

Thank you for your attention.

Very truly yours,

Michigan Water Resources Commission

Requestor

2.1 Fill in Request For File Form (Exhibit 47) and give the form to the File Control Clerk.

2.2 Obtain file or document.

2.3 On or before return due date, return the file to the Central File Unit.

File Control

3.1 Determine that request forms are received for all files or documents removed from main file.

3.2 Determine that request forms are properly filled in with date and requestor department and name.

3.3 Remove files or documents.

3.4 File the request forms in alphabetic sequence in a separate out-file and file an Out-File Card (Exhibit 48) in place of the missing file.

REQUEST FOR FILE

EXHIBIT 47

FILE NAME ____________________ DATE REQUESTED __________

DOCUMENT NAME ____________________ DATE FILE DUE __________

FILE NEEDED FOR ______________________________

____

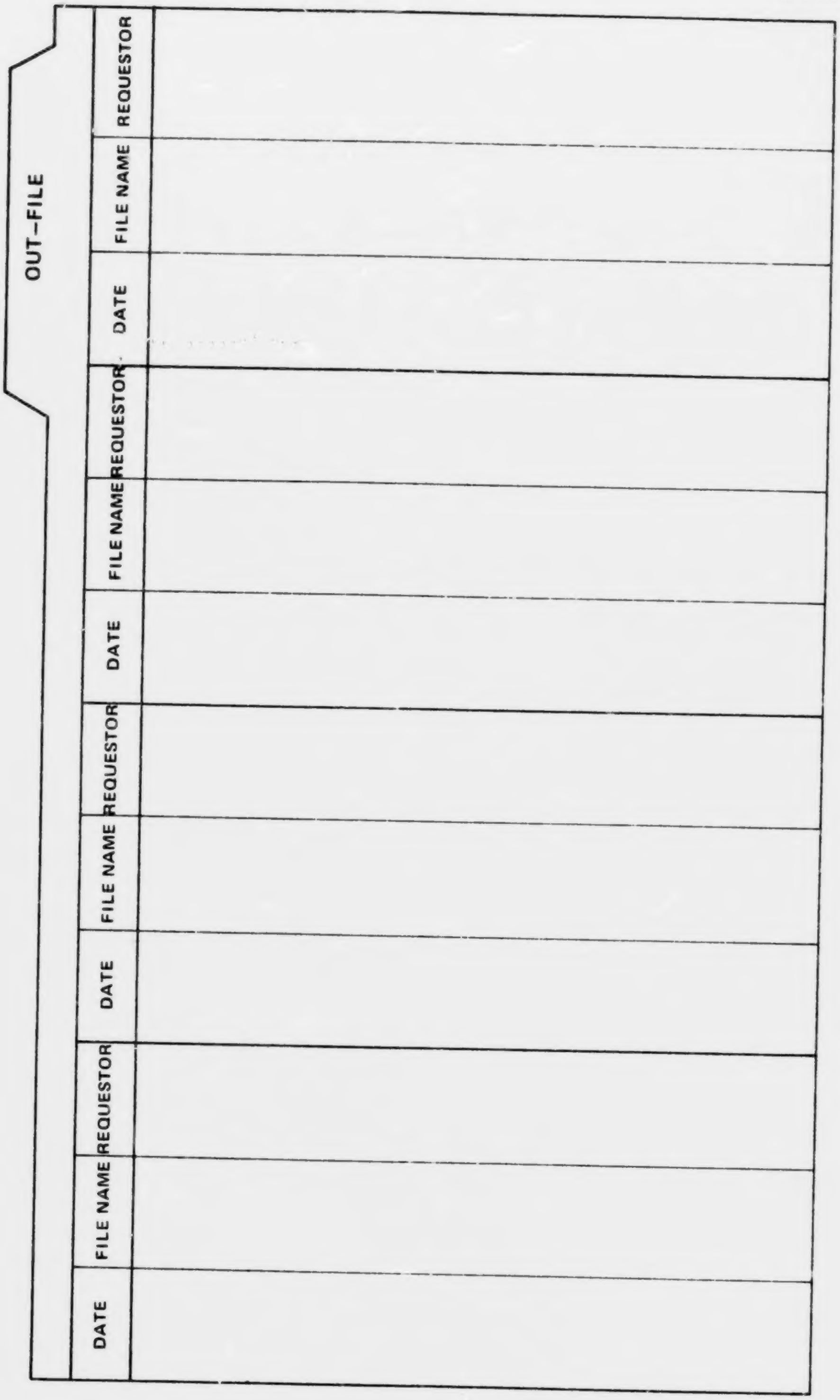
____

REQUESTOR DEPARTMENT ______________________________

REQUESTOR NAME ______________________________

EXHIBIT 48

OUT–FILE CARD


OUT–FILE
DATE
FILE NAME
REQUESTOR
DATE
FILE NAME
REQUESTOR
DATE
FILE NAME
REQUESTOR
DATE
FILE NAME
REQUESTOR

LETTER SIZE FOLDER STOCK

3.5 Weekly, review this out-file for files overdue. Call the requestor and determine that the file is required for a longer period or will be returned.

3.6 Destroy the original request forms only when files are returned.

3.7 Refile the material received and remove the Out-File Cards from the file.

* * * *

Procedure 8

SUBJECT: Microfilm Reader-Filler Processing

PURPOSE: To document the clerical handling involved in inserting microfilm images into the microfilm jackets.

PROCEDURES:

Reader-Filler Processing - File Unit

1. Microfilm will be returned daily from the Record Center. Insert the roll of film in the reader-filler. Index to the first image.

2. Read the name of the industrial firm, river, stream, or municipality. This name is the index to the permanent microfiche file.

3. Visually locate and obtain the proper file and the last jacket in sequence for that file.

4. Place the jacket in the reader-filler.

5. Index to the A row, and if space is available in that row, depress the button to cut and fill that row. Where more documents are present for that file, repeat the process through the B, C, D, and E rows.

* * * *

Procedure 9

SUBJECT: Batch Control of Input Forms

URPOSE: To provide a procedure for controlling the transmittal of documents between MWRC and the Data Processing Department.

EXHIBITS: 49 Daily Input Batch Log Form
50 Daily Batch Transmittal Form

EXHIBIT 49

DAILY INPUT BATCH LOG

MONTH May

DATE	BATCH NO.	DOC TYPE	RECEIVED IN MAIL	HELD IN MWRC DEPT.	SEND TO D.P.	RETURN FROM D.P.	COMMENTS
5/5	2	1	505	3	502		
	3	1	235	–	235		

BATCH NO. 2 **DAILY BATCH TRANSMITTAL** EXHIBIT 50

DATE 5/5/71

NUMBER OF DOCUMENTS			
INFORM	PAR INPUT	NEW STATION	COMMENTS
502			

PROCEDURES:

Clerical

1.1 All documents prepared for data processing, either from forms prepared by MWRC or forms received in the mail, must be date-stamped and batched for processing.

1.2 As documents are checked, the documents held for other MWRC processing are removed from the daily count.

1.3 Record number of documents received in the mail on the Daily Input Batch Log (Exhibit 49).

1.4 Record number of documents held in the department for other review.

1.5 Record the number of documents sent to the Data Processing Department on the Daily Input Batch Log Form.

1.6 Fill in a Daily Batch Transmittal Form (Exhibit 50) for each batch submitted, and record the number of documents sent to the Data Processing Department.

1.7 As documents are returned from the Data Processing Department, notation should be made in the Daily Input Batch Log of the number returned.

SECTION VII

SYSTEM CODING STRUCTURES

This section displays the data coding structures and describes their significance. Information is classified (coded) in anticipation of its use. The recommended data classification structure is based on current MWRC and MDPH activities and on the observation of data acquisition and use in similar organizations. This data coding system covers current activities and provides for future activities.

In many instances, the codes selected are already in existence. Some of these codes will provide a bridge of common information used by WISE computerized information files and STORET information files. Such codes are presented in a comparison of the different systems in Exhibit 54.

Foremost among the water quality data coding information systems is the STORET system. An interface to the STORET system is considered vital to the Michigan system. Where appropriate, STORET codes are referred to as such.

The STORET system presents several opportunities to code data, as follows:

Primary Station Number	(15 digits)
Secondary Station Number 1	(12 digits)
Secondary Station Number 2	(12 digits)
Secondary Station Number 3	(10 digits)

Flexibility is provided, even if new or revised functional responsibilities are assigned to MWRC, and it is relatively easy to change the codes that have been designed or to utilize the unused codes. In either event, it is recommended that the interface between the STORET and WISE systems be considered a vital requirement.

The investigating agency reviewed the Standard Industrial Classification Code (SIC) published by the Bureau of the Budget, United States Department of Commerce. This is a commonly accepted code, used by government and industry. In addition, the SIC Code is used in the STORET system. Although the SIC Code has some shortcomings insofar as some industries are coded to specifically and others not specifically enough, its use is recommended.

The advantages of using the SIC Code are:

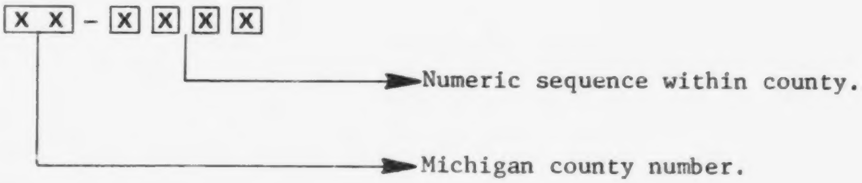
- Should statistics by business classification ever be required for publication or comparison, the SIC Code is recognized by most other government agencies and industries.
- The Code system is already developed.
- Changes to the Code system are updated by the Federal Government.
- Use of the SIC Code will make the WISE and STORET systems consistent in their classifications of industry.

Preceding page blank

STORET SYSTEM CODES

PRIMARY STATION NUMBER

This is a six-digit code structured as follows:


X X - X X X X
Numeric sequence within county.
Michigan county number.

A six-digit code has been selected at this time because:

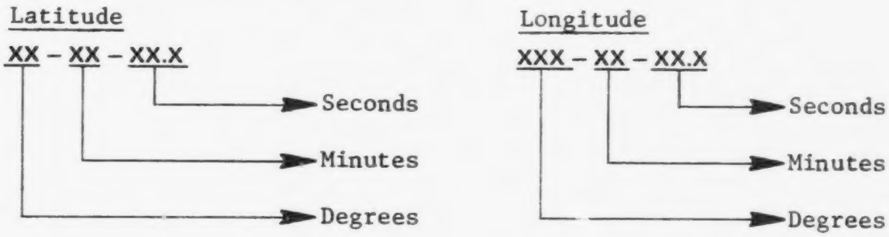
1. It is more than adequate to identify the number of water sampling stations that MWRC will require for the foreseeable future.

2. It minimizes the data input preparation details associated with submitting data to STORET.

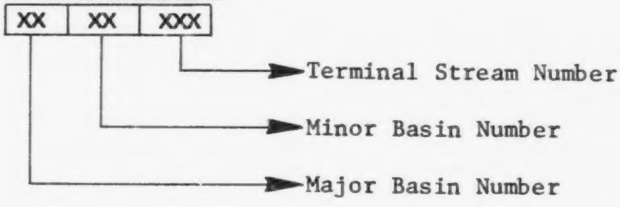
3. Although the STORET county code requires three positions to provide for states with more than 99 counties, Michigan has fewer than 99 counties. The available digits generate a potential for 10,000 sampling stations within each county.

4. Representatives of MWRC, FWPCA, and the staff of the investigating agency discussed the procedure for changing station number codes in the STORET system. Such discussion led to the conclusion that a change could be effected should the need arise.

LATITUDE-LONGITUDE COORDINATES


Latitude
XX - XX - XX.X
Seconds
Minutes
Degrees
Longitude
XXX - XX - XX.X
Seconds
Minutes
Degrees

RIVER BASIN CODING


XX | XX | XXX
Terminal Stream Number
Minor Basin Number
Major Basin Number

The River Basin Coding system has been designed by the FWPCA. Major and minor basins have already been assigned 2-digit code numbers. (Exhibit 57) The Terminal Stream Number code is a 3-digit number to be assigned by local agencies. (Exhibit 52)

Most of Michigan drains into the major basin 08, Western Great Lakes, with a small portion of the southeastern corner of the State draining into 06, Lake Erie through the Maumee River.

STORET STATION TYPE

This eight-position code is structured as follows:

(1)	(2)	(3)	(4)	(5)	(6)	(7-8)
X	X	X	X	X	X	XX

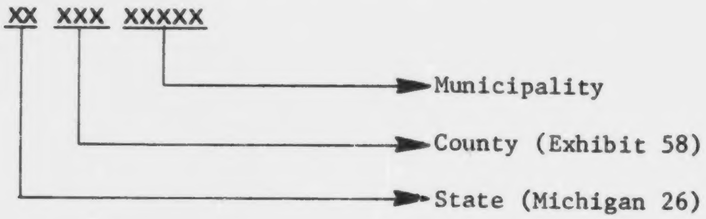
Position

(1) Always 0	
(2) Type of Data	- 1 - Other 2 - Water Quality 4 - Flow, Tide, Well Level
(3) Type of Site	- 1 - Other 2 - Municipal 4 - Industrial
(4) State of Water	- 1 - Raw before treatment 2 - Partial (at intermediate point) 4 - Treated (after available treatment)
(5) Source of Sample	- 1 - Direct (from stream, well, etc.) 2 - Intake 4 - Outfall
(6) Location C	- 1 - Tidal 2 - Other (e.g., land, nontidal) 4 - Vessel
(7-8) Locations A & B	AB 01 - Ocean 02 - Lake 04 - Stream 10 - Well 20 - Land 40 - Unused

The above codes are specified by the EPA. They must be presented at times of storage and retrieval from the STORET system. These codes were supplied to MWRC on January 9, 1969 by a representative of the FWPCA.

POLITICAL CODE

This ten-digit code is structured as follows:



The index for this code structure is supplied by the EPA for counties and municipalities in Michigan. Use of this particular code structure is recommended because:

1. The source for the code is the Bureau of the Census, United States Government. Use of this code assures interface of MWRC data and data generated by the Bureau of the Census. Such an interface could be of vital significance in analysis of population trends and water resources.

2. The EPA intends to maintain this code structure for all STORET users.

3. The five-digit code represents population centers as defined by the Bureau of the Census.

POLLUTANT PARAMETER CODE

This is a five-digit code identifying 99,999 potential kinds of water quality parameters. At this time between five and six hundred have been identified.

The assignment and significance of these codes are controlled by the EPA and are published in the STORET system Parameter Code Book. Additional parameters can be added as needed. (Exhibit 55)

WISE SYSTEM CODES

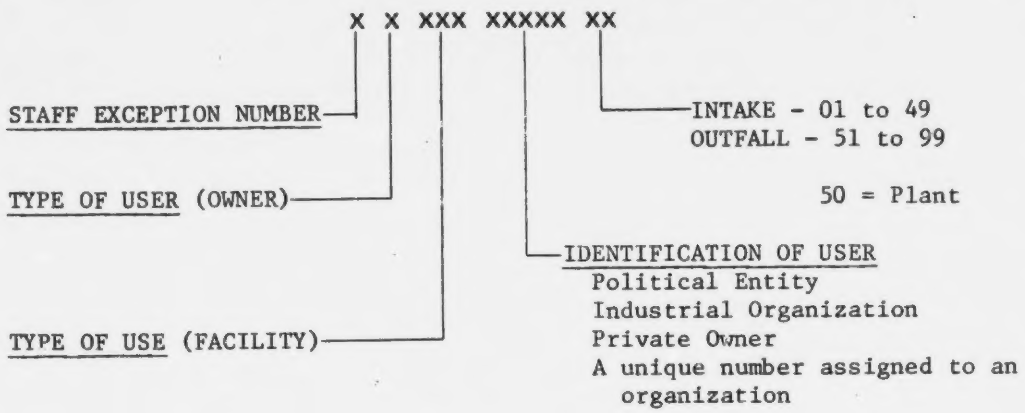
PRIMARY STATION NUMBER

The WISE - Primary Station Number is identical to the Primary Station Number shown in STORET codes. This common numbering system is vital to assure a continuing interface of data processing potentials between the EPA-STORET system and the MWRC-WISE system.

SECONDARY STATION NUMBER

This is a 12-digit code available in the STORET system and the WISE system.

The code is structured as shown in the following description:


X X XXX XXXXX XX
STAFF EXCEPTION NUMBER
TYPE OF USER (OWNER)
TYPE OF USE (FACILITY)
INTAKE - 01 to 49
OUTFALL - 51 to 99
50 = Plant
IDENTIFICATION OF USER
Political Entity
Industrial Organization
Private Owner
A unique number assigned to an organization

STAFF EXCEPTION NUMBER

This is a one-digit code reserved for field staff use. The codes are as follows:

Code	Use
1	File should check exceptions for all conditions
2	File should check exceptions for monthly reports only
3	File should check exceptions for visits only
4	File should check exceptions for due dates only
5	File should check exceptions for monthly reports and visits
6	File should check exceptions for monthly reports and due dates.

7	File should check exceptions for visits and due dates
8	File should not check exceptions - inventory only
9	Not used at this time

TYPE OF USER

This is a one-digit code which describes the Type of User and determines the character of the remaining 10 digits of the 12-digit secondary code. The Type of User codes are:

1 Municipal - Surface Water
2 Industrial - Surface Water
3 Private - Surface Water
4 Other - Surface Water
5 Municipal - Ground Water
6 Industrial - Ground Water
7 Private - Ground Water
8 Other - Ground Water
9 Other

If Type of User is industrial (2, 6) or commercial (4, 8), use the Standard Industrial Classification Code (Exhibit 51).

If Type of User is municipal (1, 5), use the MMC Code (Exhibit 53).

TYPE OF USE

Three digits characterize the type of use. At this time, no significance has been assigned to these three digits where the Type of User is represented by code:

3 Private - Surface Water
7 Private - Ground Water
8 Other - Ground Water
9 Other

Where the type of user code, however, is:

2 Industrial - Surface Water
4 Other - Surface Water - Commercial
6 Industrial - Ground Water
8 Other - Ground Water - Commercial

the three-digit code is referred to as the Standard Industrial Classification Code.

Where the type of user code is:

1 Municipal - Surface Water
5 Municipal - Ground Water

the three-digit code is referred to as the Michigan Municipal Classification Code (Exhibit 53). The code describes the treatment plant size, plant type, and collection system.

IDENTIFICATION OF USER

This is a five-digit code to identify the user. Two types of user codes are recommended: (1) Industrial and (2) Municipal. The codes are:

(1) Industrial. A five-digit alphanumeric number indexing all users classified as industrial or commercial.

(2) Municipal. The five-digit code supplied by the Bureau of the Census. When applied to data maintained by MWRC, provision for file maintenance must be made to assure interface to the STORET file maintenance procedures.

INTAKE OR OUTFALL

A two-digit code can identify within each organization:

- Intakes - 01 to 49
- Outfalls - 51 to 99
- Plant - 50

LOCATION NUMBER

A ten-digit number is used to identify the enforcement areas and river and stream codes.

X XX XX XX XXX

1. ENFORCEMENT REGION

   REGION 1 = 1
   REGION 2 = 2

2. ENFORCEMENT DISTRICT

   5 DISTRICTS CODED FOR MWRC USE

3. MAJOR RIVER BASIN
4. MINOR RIVER BASIN
5. TERMINAL STREAM NUMBER

The River Basin Coding system has been designed by the EPA. This coding structure has previously been explained under STORET codes.

EXHIBIT 51

STANDARD INDUSTRIAL CLASSIFICATION CODE (PARTIAL LIST)

2600 PULP AND PAPER

2621 Newsprint

2621 Kraft

2611 Sulphite

2611 Groundwood

2611 Neutral Sulphite Semi-chemical

2646 Board (building board, ceiling tile, linerboard, etc.)

2649 Paper Converting (tissue, corrugated boxes, cartons, laminating, gummed paper)

2642 Fine Paper

2000 FOOD PROCESSING

2033 Canning, Fruit and Vegetable Packing (canned fruit and vegetables, meat, etc., frozen fruit and vegetables, fresh vegetable preparation and packing)

2026 Milk Processing (butter, fluid milk, condensed milk, dried milk, whey powder, milk chemicals, ice cream mix, etc.)

2022 Cheese Making

2021 Meat Packing and Allied Industries (meat, poultry, fish, animal and pet food)

2042 Grain, Cereals and Cereal Products (elevators, oil seed mills, starch, milling, prepared cereals, malting)

2085 Brewing, Distilling and Wine Production

2099 Miscellaneous Foods (baking, soft drinks, vegetable oils, margarine, shortening, candy, sugar refining, specialty foods, potato products)

EXHIBIT 52

TERMINAL STREAM NUMBERS (PARTIAL LIST)

Keweenaw County

465 ----------------------------- Tobacco River
470 ----------------------------- Winters Creek
475 ----------------------------- Big Betsy River
480 ----------------------------- Little Betsy River
485 ----------------------------- Mendota Canal
490 ----------------------------- Montreal River
495 ----------------------------- Hoar Creek
500 ----------------------------- Lake Lily Outlet
505 ----------------------------- Lake Fanny Hooe Outlet
510 ----------------------------- Silver River
515 ----------------------------- Cedar Creek
520 ----------------------------- Eliza Creek
525 ----------------------------- Owl Creek
530 ----------------------------- Jacobs Creek
535 ----------------------------- Garden City Creek
540 ----------------------------- Eagle River
545 ----------------------------- Sand Hill Creek
550 ----------------------------- Silver Creek
555 ----------------------------- Seven Mile Creek
560 ----------------------------- Gratiot River
565 ----------------------------- Hill Creek
570 ----------------------------- Brewery Creek

Houghton County

575 ----------------------------- Gardeners Creek
580 ----------------------------- Muggun Creek
585 ----------------------------- Seven Mile Creek (opening of Portage
600 ----------------------------- Salmon Trout River Lake ship canal;
615 ----------------------------- Graveraet River considered to be
630 ----------------------------- Elm River origin of Portage
635 ----------------------------- Little Elm River River (08-23-)

Ontonagon County

645 ----------------------------- Misery River
650 ----------------------------- Black Creek
655 ----------------------------- McCarthy Creek
660 ----------------------------- Sleeping River
665 ----------------------------- Tenmile Creek
670 ----------------------------- Firesteel River
675 ----------------------------- Flintsteel River

EXHIBIT 53

MICHIGAN MUNICIPAL CLASSIFICATION (MMC)

PLANT SIZE CODE

A = PLANT 40,000 POPULATION AND OVER
B = PLANT 10,000 TO 40,000
C = PLANT 2,000 TO 10,000
D = PLANT UNDER 2,000
E = NONE

PLANT TREATMENT TYPE

A = PRIMARY
B = TRICKLING FILTER
C = ACTIVATED SLUDGE
D = LAGOONS
E = AERATED LAGOONS
F = SEPTIC TANKS
G = FINE SCREEN
H = SAND FILTER
I = IMHOFF TANK
J = DILUTION
K = CHEMICAL PRECIPITATION
L = NONE

COLLECTION SYSTEM

S = SEPARATE
C = COMBINED
B = BOTH SEPARATE AND COMBINED
N = NONE

EXHIBIT 54

COMPARISON OF CODING SYSTEMS

STORET SYSTEM	WISE SYSTEM
PRIMARY STATION NUMBER • County (2) • Numeric Sequence (4)	Same
LATITUDE-LONGITUDE • Seconds • Minutes • Degrees	Not Used
RIVER BASIN • Major Basin • Minor Basin • Terminal Stream	See Location Number
STORET STATION TYPE • Type of Data • Type of Site • State of Water • Source of Sample • Location C • Location A & B	Not Used
POLITICAL CODE • State • County • Municipality	Not Used
SECONDARY (1) • Staff • User • Water Use • Organization I. D. • Intake, Outfall	Same
SECONDARY (2)	Not Used
SECONDARY (3)	Not Used
POLLUTANT PARAMETER • Kind of Water Quality	Same
	LOCATION NUMBER • Region • District • Major Basin • Minor Basin • Terminal Stream
RIVER MILE INDEX • Level • Mileage • Index	Not Used

EXHIBIT 55

ABBREVIATED STORET PARAMETER LIST

Parameter	Report As	Units	STORET No.	STORET Parameter Name
Acetic Acid	Acetic Acid	mg/l	90006	ACETIC-A
Algae - Floating Mats	0-4	severity*	01325	ALGAEMAT
Algae - Total	-	cells/ml	60050	ALGAETOT
Alkalinity - Bicarb.	CaCO3	mg/l	00425	ALK-BIC
Alkalinity - Carbonate	CaCO3	mg/l	00430	ALK-CARB
Alkalinity - Total	CaCO3	mg/l	00410	ALK-TOT
Aluminum - Total - ug/l	Al	ug/l	01107	ALTOT-UG
Ammonia - Nitrogen	N	mg/l	00610	NH3-N
Ammonia - Nitrogen lbs/day	N	lbs/day	90009	NH3-N#/D
Antimony - Total ug/l	SB	ug/l	01097	SBTOT-UG
Beta - Net	-	pc/l	90005	NET-BETA
Beta - Total	-	pc/l	03501	BETA-TOT
Beta - Total - Error	-	pc/l	03502	BET-T-ER
Biomass - Plankton	-	ml/l	00570	BIO-PLTN
BOD-5 - mg/l	-	mg/l	00310	BOD-5
BOD-5 lbs/day	-	lbs/day	85001	BOD-5#/D
BOD-20 day - mg/l	-	mg/l	00324	BOD-20
BOD Ultimate First Stage	BOD	mg/l	00320	BOD-UF
Cadmium - Dissolved	Cd	ug/l	01025	CD-UG/L
Cadmium - Total	Cd	ug/l	01027	CDTOT-UG
Calcium	Ca	mg/l	00915	CALCIUM
Carbon Dioxide	CO2	mg/l	00405	CO2
CCE	-	ug/l	32005	CCE-UG/L
Chloride - mg/l	Cl	mg/l	00940	CL
Chloride - lbs/day	Cl	lbs/day	85011	CL #/DAY
Chlorine - Total Resid.	-	mg/l	50060	CL2-T-RS
Chloroform Extractables (oil-grease)	CE	mg/l	32270	CE-MG/L
Chromium - Hexavalent lbs/day	Cr	lbs/day	90003	CR6#/DAY
Chromium - Hexavalent	Cr	ug/l	01032	CR6-UG/L
Chromium - Trivalent	Cr	ug/l	01033	CR3-UG/L
Chromium - Total - ug/l	Cr	ug/l	01034	CRTOT-UG
Chromium - Total - lbs/day	Cr	lbs/day	85007	CRTOT#/D
Cloud Cover	-	percent	00032	CLOUDCOV
COD	-	mg/l	00335	COD
COD - lbs/day	-	lbs/day	90007	COD#/D
Coliform-Confirmed (Houghton)	-	MPN	31505	COLITMPN
Coliform - Fecal	-	MF/100 ml	31616	COLI-FEC

*Coding for Severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme (Report as Whole Number) (Revised 4/20/71)

EXHIBIT 55
Continued

Parameter	Report As	Units	STORET No.	STORET Parameter Name
Color	MBAS	PT-CO	00080	COLOR
Coliform - Les Agar	-	MF/100 ml	31504	COLI-TMF
Conductivity	-	micrombos-25oC	00095	CNDUCTVY
Copper - Dissolved	Cu	ug/l	01040	CU-UG/L
Copper - Total - ug/l	Cu	ug/l	01042	CUTOT-UG
Copper - Total - lbs/day	Cu	lbs/day	85009	CUTOT#/D
Cyanide - mg/l	CN	mg/l	00720	CYANIDE
Cyanide - lbs/day	CN	lbs/day	85008	CYAN#/D
Debris - Floating	0-4	severity*	01345	DEBR-FL
Deox. Const.	K1	-	00325	DEOXCON
Depth - Sample From Surf.	-	ft.	00003	DEPTH
DO	-	mg/l	00300	DO
DO - Percent Sat.	-	percent	00301	DO-%SAT
Fish - Dead	0-4	severity*	01340	FSH-DEAD
Flow - Conduit	-	MGD	50050	FLOW-MGD
Flow - Stream	-	cfs	00060	FLOW-CFS
Flouride	F	mg/l	00950	FLUORIDE
Hardness - Total	CaCO3	mg/l	00900	HARD-TOT
Ice Cover	0-4	severity*	01355	ICE COV
Iron - Total - ug/l	Fe	ug/l	01045	FE-UG/L
Iron - Total - lbs/day	Fe	lbs/day	85012	IRON#/D
Lab. Number	-	-	00008	LAB NO.
Lead - Dissolved	Pb	ug/l	01049	PB-UG/L
Lead - Total	Pb	ug/l	01051	PBTOT -UG
Magnesium	Mg	mg/l	00925	MG
Manganese	Mn	ug/l	01055	MN-UG/L
Mercury - Total - ug/l	Hg	ug/l	71900	HGTOT-UG
Mercury - Total - lbs/day	Hg	lbs/day	85013	HGTOT#/D
Methylene Blue Active Substances	MBAS	mg/l	38260	MBAS
Nickel - Dissolved	Ni	ug/l	01065	NI-UG/L
Nickel - Total - ug/l	Ni	ug/l	01067	NITOT-UG
Nickel - Total - lbs/day	Ni	lbs/day	85010	NITOT#/D
Nitrate	N	mg/l	00620	NO3-N

* Coding for severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme (Report as Whole Number) (Revised 4/20/71)

EXHIBIT 55
Continued

Parameter	Report As	Units	STORET No.	STORET Parameter Name
Nitrate + Nitrite	N	mg/1	00630	NO2NO3-N
Nitrogen - Total - Kjeldahl	N	mg/1	00625	N-T-KJEL
Nitrogen - Total	N	mg/1	00600	N-TOT-MG
Odor at Room Temperature	1-20	Intensity	00085	ODOR
Oil - Grease, Total	Oil	mg/1	00550	OIL-MG/L
Oil - Grease (visual)	0-4	severity*	01300	OIL-GRSE
Organic - Nitrogen	N	mg/1	00605	N-ORG
ORP	-	mv	00090	ORP-MV
pH	0-14	SU	00400	PH
Phenol - ug/1	-	ug/1	32730	PHENOL
Phenol - lbs/day	-	lbs/day	85003	PHENOL#D
Potassium	K	mg/1	00935	K
Precipitation - Total	-	in/day	00045	PRECIP-T
Phosphorous - Total	P	mg/1	00665	P-TOT
Phosphorous - Total - lbs/day	P	lbs/day	85004	P-TOT#/D
Phosphorous - Soluble Ortho PO4	P	mg/1	00671	SOPO4-P
Phosphorous - Soluble Ortho lbs/day	P	lbs/day	85005	SOPO4P#D
Phosphate Removal	-	percent	90002	TOTPREM%
Residue - Total	-	mg/1	00500	SOLIDTOT
Residue - Total - Filt.	-	mg/1	00515	SOLIDDIS
Residue - Total - Non. Filt. - mg/1	-	mg/1	00530	SOLIDSUS
Residue - Total - Non. Filt. - lbs/day	-	lbs/day	85002	SOLSUS#D
Residue - Total Filt. - lbs/day	-	lbs/day	90010	SOLDIS#D
Residue - Vol. - Non. Filt.	-	mg/1	00535	SOLID-SV
Residue, Settleable	-	mg/1	00546	SOLIDSET
Radionuclides	-	-	90004	RADC/MPC
Silica - Dissolved	si02	mg/1	00956	SI02
Silica - Tot	Si02	mg/1	00955	SI02-TOT
Sodium	Na	mg/1	00930	SODIUM
Sulfate	SO4	mg/1	00945	SO4
Sulfite	SO3	mg/1	00740	SO3
T	-	oF	90001	TEMP-F+
Temperature - Air	-	oC	00020	TEMPAIRC
Temperature - Water	-	oC	00010	TEMPH2OC
Temperature - Water	-	oF	00011	TEMPH2OF
Transparency	-	in.	00077	TRANSPAR

* Coding for Severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme (Report as Whole Number). (Revised 4/20/71)

EXHIBIT 55
Continued

Parameter	Report As	Units	STORET No.	STORET Parameter Name
Turbidity	-	JCU	00070	TURB-JCU
Turbidity (Clarity)	0-4	severity*	01350	TURB-SEV
Total Oxygen Demand	-	lbs/day	90008	TOD#/D
Width - Stream	-	ft.	00004	WIDTH
Wind - Direction	clockwise from true N	degrees	00036	WIND DIR
Wind Velocity	-	MPH	00035	WIND VEL
Zinc - Dissolved	Zn	ug/l	01090	ZINCUG/L
Zinc - Total - ug/l	Zn	ug/l	01092	ZNTOT-UG
Zinc - Total - lbs/day	Zn	lbs/day	85006	ZNTOT#/D

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* Coding for Severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme (Report as Whole Number). (Revised 4/20/71)

MICHIGAN ENFORCEMENT DISTRICTS

EXHIBIT 56

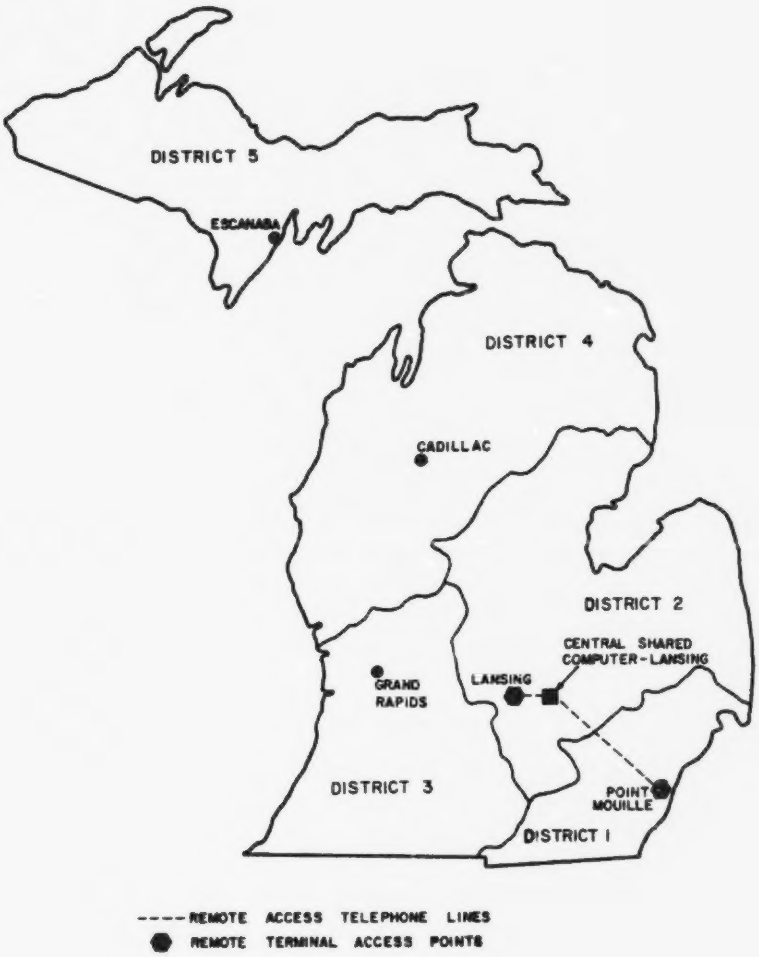
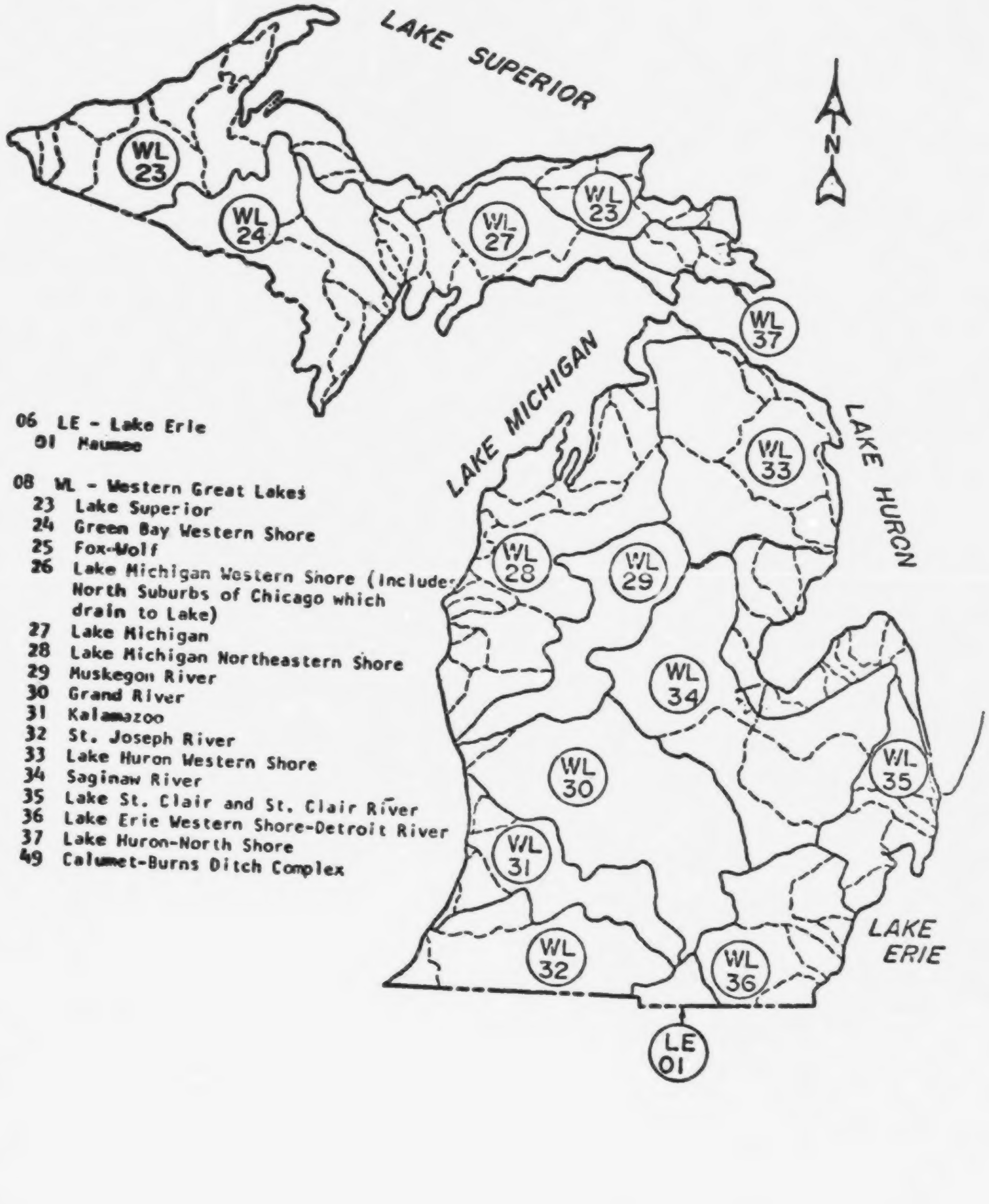

DISTRICT 5
ESCANABA
DISTRICT 4
CADILLAC
DISTRICT 2
CENTRAL SHARED COMPUTER-LANSING
LANSING
GRAND RAPIDS
DISTRICT 3
POINT MOUILLE
DISTRICT 1
----REMOTE ACCESS TELEPHONE LINES
⬢ REMOTE TERMINAL ACCESS POINTS

EXHIBIT 57

MINOR RIVER BASINS IN MICHIGAN

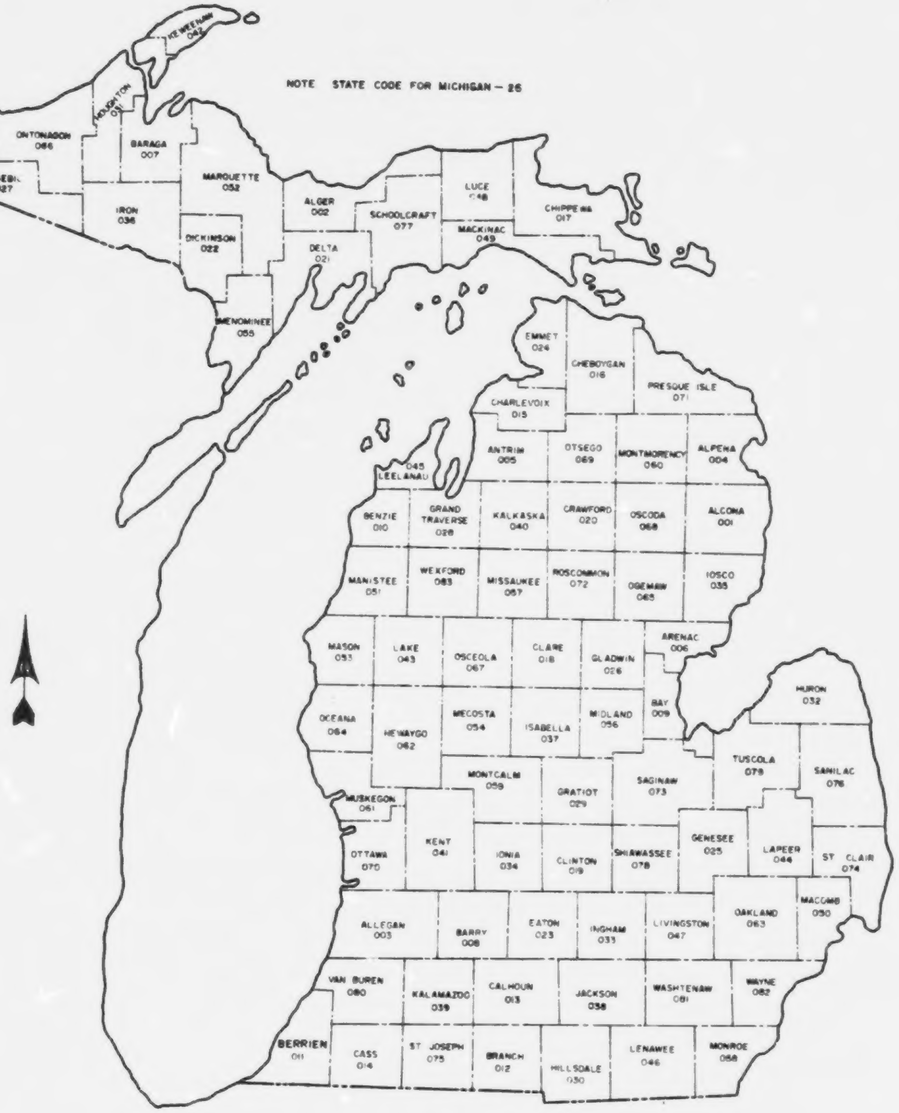

LAKE SUPERIOR
N
WL 23
WL 24
WL 27
WL 23
WL 37
LAKE MICHIGAN
LAKE HURON
WL 33
WL 28
WL 29
WL 34
WL 35
WL 30
WL 31
WL 32
WL 36
LAKE ERIE
LE 01

06 LE - Lake Erie
  01 Maumee

08 WL - Western Great Lakes
  23 Lake Superior
  24 Green Bay Western Shore
  25 Fox-Wolf
  26 Lake Michigan Western Shore (Includes North Suburbs of Chicago which drain to Lake)
  27 Lake Michigan
  28 Lake Michigan Northeastern Shore
  29 Muskegon River
  30 Grand River
  31 Kalamazoo
  32 St. Joseph River
  33 Lake Huron Western Shore
  34 Saginaw River
  35 Lake St. Clair and St. Clair River
  36 Lake Erie Western Shore-Detroit River
  37 Lake Huron-North Shore
  49 Calumet-Burns Ditch Complex

EXHIBIT 58

STORET SYSTEM
COUNTY CODE NUMBERS


NOTE STATE CODE FOR MICHIGAN - 26
KEWEENAW 042
HOUGHTON 031
ONTONAGON 066
BARAGA 007
GOGEBIC 027
MARQUETTE 052
IRON 036
DICKINSON 022
ALGER 002
SCHOOLCRAFT 077
LUCE 048
CHIPPEWA 017
MACKINAC 049
DELTA 021
MENOMINEE 055
EMMET 024
CHEBOYGAN 016
PRESQUE ISLE 071
CHARLEVOIX 015
ANTRIM 005
OTSEGO 069
MONTMORENCY 060
ALPENA 004
045 LEELANAU
BENZIE 010
GRAND TRAVERSE 028
KALKASKA 040
CRAWFORD 020
OSCODA 068
ALCONA 001
MANISTEE 051
WEXFORD 083
MISSAUKEE 057
ROSCOMMON 072
OGEMAW 065
IOSCO 035
ARENAC 006
MASON 053
LAKE 043
OSCEOLA 067
CLARE 018
GLADWIN 026
HURON 032
BAY 009
OCEANA 064
NEWAYGO 062
MECOSTA 054
ISABELLA 037
MIDLAND 056
TUSCOLA 079
SANILAC 076
MONTCALM 059
GRATIOT 029
SAGINAW 073
MUSKEGON 061
KENT 041
GENESEE 025
LAPEER 044
ST CLAIR 074
OTTAWA 070
IONIA 034
CLINTON 019
SHIAWASSEE 078
MACOMB 050
ALLEGAN 003
BARRY 008
EATON 023
INGHAM 033
LIVINGSTON 047
OAKLAND 063
VAN BUREN 080
KALAMAZOO 039
CALHOUN 013
JACKSON 038
WASHTENAW 081
WAYNE 082
BERRIEN 011
CASS 014
ST JOSEPH 075
BRANCH 012
HILLSDALE 030
LENAWEE 046
MONROE 058

SECTION VIII

WISE INPUT DOCUMENTS AND INPUT SYSTEMS

Input forms and techniques are important aspects of system design because input processing costs usually represent a large part of the total system operating cost and time. Consequently, analysis has been made of techniques that would provide improved efficiencies in input processing. Some techniques described in this Section are optical character reading (OCR), computer-prepared documents, and key-to-tape. Recommendations are provided for the future use of one or more of these methods.

Currently, data is entered into the computer system from punched cards, which have been transcribed from preprinted forms. For ease of punching, the forms have been designed to reflect punched-card column alignment. One report, the Monthly Operating Report (INFORM), is computer-printed, and is used as an input document.

Fifteen documents serve as source media for all information compiled and entered into the WISE system. The titles of these documents are:

Station Number Request Form (Exhibit 30)
New Station Set-Up Sheet (Exhibit 32)
Monthly Operating Report (INFORM) (Exhibits 44 and 45)
Monthly Report of Field Survey (Exhibit 59)
District Field Visits (Exhibit 60)
Annual Ratings and Tax Exemption Status (Exhibit 61)
Monthly Report of Commission Action (Exhibit 62)
Monthly Report of Judicial Proceedings (Exhibit 63)
Monthly Report of Performance Scheduled (Exhibit 64)
Monthly Report of Performance Completed (Exhibit 65)
Report Titles (Exhibit 66)
Certified Waste Treatment Plant Operators (Exhibit 67)
Organization and Outfall Description Card (Exhibit 68)
Address Correction Card (Exhibit 69)
River Basin and Organization Card (Exhibit 70)

STATION NUMBER REQUEST FORM (EXHIBIT 30)

This document is initiated to request a new station number or request a number for a new outfall. It is sent to Central Administrative Control by the district engineer.

Section VI, Procedure 3 describes the clerical processing requirements for this document.

NEW STATION SET-UP SHEET (EXHIBIT 32)

This document is initiated for each new station. All of the information on this source document becomes part of the computer master file. From a master file so constructed, the computer will print a variety of reports such as:

- Monthly Operating Report, listing parameters to be measured.
- Preprinted envelopes or gummed-back address labels for special mailings in connection with MWRC functions.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
10	Organization Name	Allows 30 characters each to record the name of the organization and the person with whom contact is maintained.
11		Shows address in two 30-character fields.
20	Outfall Name	Allows 30 characters to record name of outfall and person with whom contact is maintained.
21		Records address of outfall in two 30-character fields.
60 61	Organization Name	Two 34-character records show the name of the organization as it will appear on the Monthly Operating Report. Each record prints one line of description with the same spacing as recorded. At least one record is required for each station.
70	Outfall Name	34 characters identify a specific outfall. This record is optional.
80		Parameter Codes: Up to ten separate parameter codes may be established for each station. In addition, one or more MWRC orders may be recorded for each parameter. Each order number and/or parameter code will print on a separate line on the report. In no event, however, may there be more than ten lines of such information (ten distinct combinations of order number and/or parameter code).
	(9-13)	MWRC Order Number: Five-digit commission order number. It may or may not be associated with a specific commission order.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
	(14-18)	Parameter Name: Eight-character abbreviated name (parameter code list from which the parameter number was obtained).
	(56)	(Blank)
	(57-64)	Standard Value-Average: Value assigned by the MWRC as applicable to this parameter. This value may be recorded in eight positions as follows: 2 3 . 6 4 8 2 , 4 2 8 . 1 . 3 6 9 1 2 3 4 5 6 7 8 Commas and decimals require one character. Try to position decimals in the same column for a given organization (outfall). There are eight positions allotted on the report to display this information.
	(65)	(Blank)
80	(66-73)	Standard Value-Limit: In some instances the commission order may specify not only that a certain average reading is to be maintained over a period, but that no single reading may be in excess of a specified figure. In such instances record the limit in this area.
80	(74-80)	(Blank)

MONTHLY OPERATING REPORT (EXHIBITS 44 and 45)

This report, printed by the computer and sent to the organization affected, is used as an input document by the Certified Operator to record the parameter measurements and to report back to the MWRC staff.

Multiple copies of the form are supplied because:

- The organizations needs more than one month's supply of forms.
- Reporting is required for more than one station number (plant location, outfall, and intake).
- More than seven parameters are reported for a particular station.

The procedure for recording parameter measurements is described in the following instructions:

1. MONTHLY OPERATING REPORT FOR MAY, 1971

Fill in the month and year covered by this report. The report you submit the first week in June is the May report.

2. THIS IS YOUR MONTHLY REPORT FORM FOR
48-INCH PIPE TO SWAN CREEK
ZAP MOTORS CORP.
NUT DIVISION, PODUNK

A three-line name will appear in this box which is the name we have assigned to the outfall. If the first line says "All Outfalls," then the form and station number apply to the plant location. Any changes in outfall name or location can be handwritten in by the operator when he submits this report.

3. a. ZAP MOTORS CORP.
ANDY CRANK, VICE PRES.
1901 HORSELESS AVE.
WILMINGTON, DELAWARE

b. NUT DIVISION, ZAP MOTORS
I. M. NUT, PLANT MGR.
BOLT & THREAD STREETS
PODUNK, MICHIGAN

This box contains two separate names and mailing addresses.

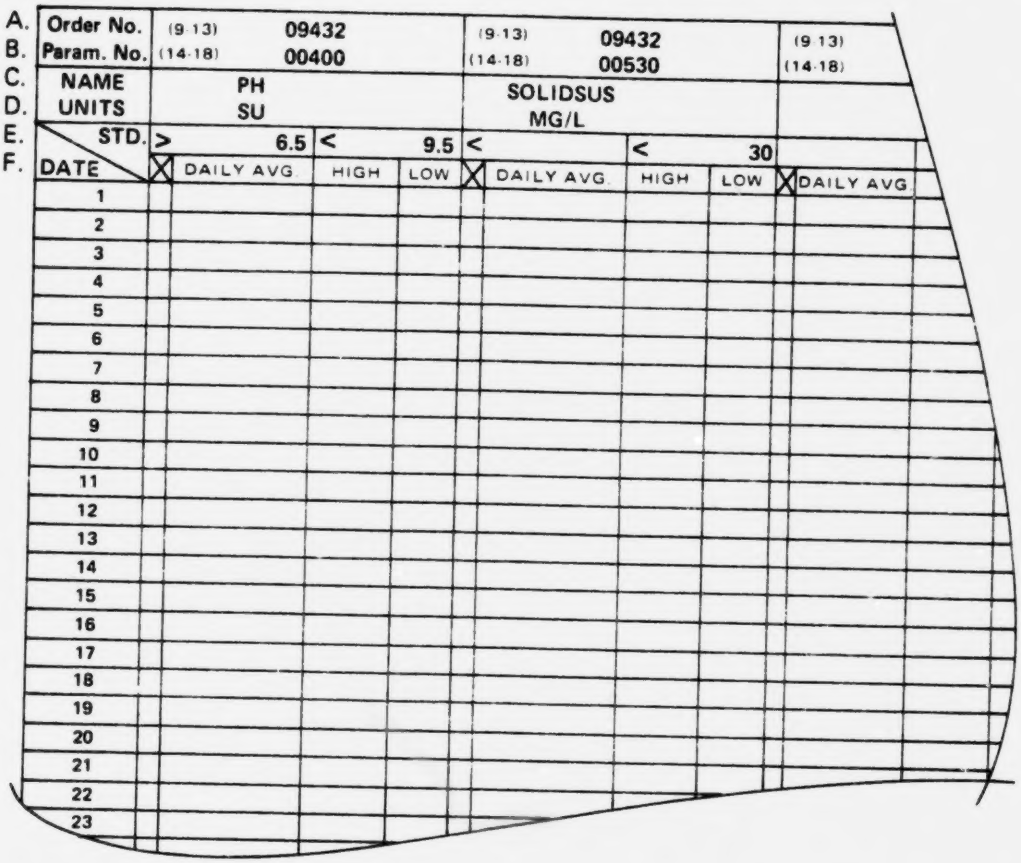
a. This is the name and address of the parent owner of the outfall or plant.

b. This is the name and address to which this form and any other official correspondence will be mailed. This has been established through prior correspondence with your company. Not all companies replied to the initial questionnaire. If you wish to change either of the two addresses, please request the change by letter from your management.

4.
STATION NUMBER 870021
(1 8)

This is the six-digit station number assigned to each outfall location and/or plant site. It represents a physical location. If outfall or descriptions change, notify MWRC staff.

5.



A.	Order No.	(9-13) 09432				(9-13) 09432				(9-13)	
B.	Param. No.	(14-18) 00400				(14-18) 00530				(14-18)	
C.	NAME	PH				SOLIDSUS					
D.	UNITS	SU				MG/L					
E.	STD.	> 6.5		< 9.5		<		< 30			
F.	DATE	☒	DAILY AVG.	HIGH	LOW	☒	DAILY AVG.	HIGH	LOW	☒	DAILY AVG.
	1										
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										

A. Order No.: Under formal Michigan Water Resources Commission enforcement actions, the Commission adopts Final Orders of Determination or Orders of Determination against plants or organizations discharging wastes. In other instances, a company may enter into a voluntary stipulation with the Commission to limit their waste discharge. If the outfall or plant is covered by an existing Order or Stipulation, the Commission assigned number will appear in this block, preprinted by the computer. If no order or stipulation is outstanding, this space will be blank.

B. Parameter No.: Each parameter has been assigned a five-digit parameter number for computer sorting. That number, preprinted by the computer, will appear in this block, and is for Commission use.

C. Name: Each parameter has a standard abbreviated name of eight characters, preprinted by the computer on this line. (See Exhibit 55.)

D. Units: For standardization a parameter must be reported in certain units. The most common are:

mg/l - milligrams per liter (a concentration)
ug/l - micrograms per liter (multiply mg/l by 1,000 to get micrograms per liter)
lbs/day - pounds per day (a load) obtained by multiplying flow (MGD) by concentration (mg/l) by 8.34
MGD - million gallons per day (flow)

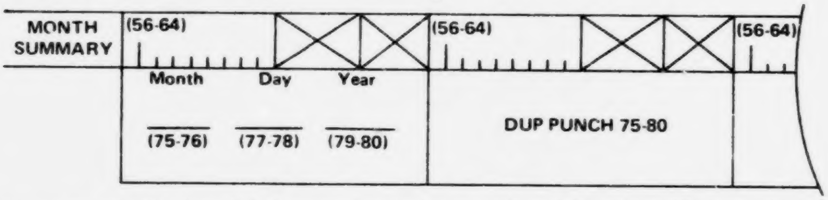
The unit for each parameter will be preprinted by the computer on this line. The parameter readings must be recorded in the units specified for that column.

E. STD: If an Order or Stipulation has set maximum, minimum, or average values that your effluent or plant must meet, then these values will be preprinted by the computer in these blanks.

If you do not have a Stipulation or Order from the Commission, a number may still be printed in these blanks. This number has been entered by a staff member of the Commission and is to allow the computer to evaluate your effluent. This number may be adjusted upward or downward at a later date.

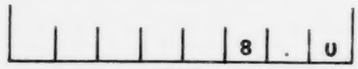
F. Date: If data is collected once daily, enter the value as a Daily Average. If data is collected more frequently, compute the Daily Average (arithmetic) and record it. In addition, record the highest value and lowest value found each day. Coliform data, if reported, should be a geometric average. Please use units specified. At end of month compute the Monthly Average and record as Month Summary.

Note: Geometric average is found by averaging the logarithms of the numbers and finding the antilog.

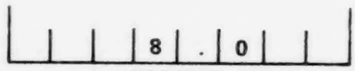


MONTH SUMMARY
(56-64)
(56-64)
(56-64)
Month Day Year
(75-76) (77-78) (79-80)
DUP PUNCH 75-80

The value computed should be recorded in this block. The number must end in the far right space.



THIS



NOT THIS

The month (as a number), last day of the month, and year should be recorded below the summary.

The frequency of reporting may be established in your Order or Stipulation. If you do not have a pre-established frequency, please contact the Water Resources Commission Basin Engineer for your area.

6.

SIGNATURE OF CERTIFIED OPERATOR ______________________________

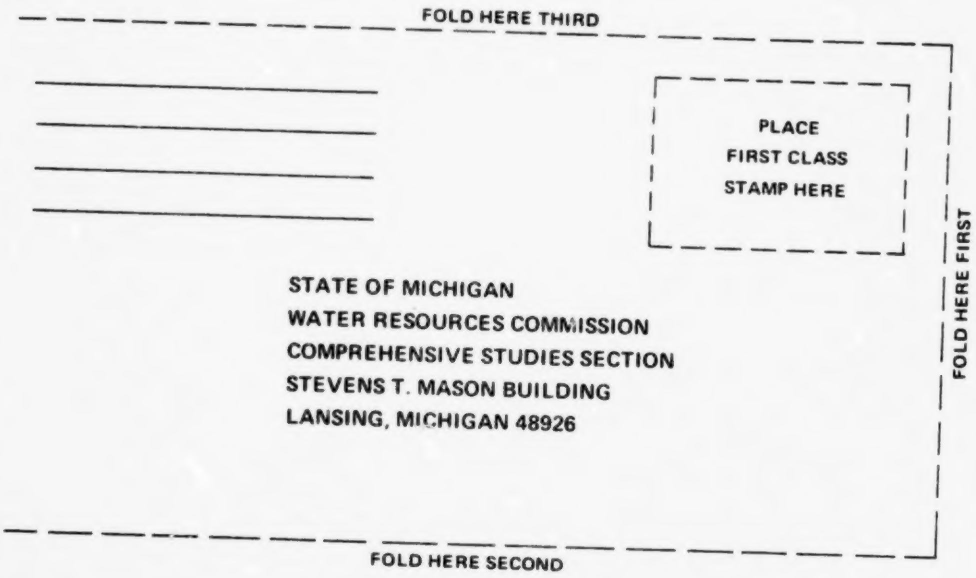
SAM TREATMENT

Certification Number W6000

R 4515 9/70

The name of the Certified Operator and his certification number will appear pre-printed in these blocks. The Certified Operator must sign this form prior to mailing. If the signature does not match the Certified Operator's, a written explanation should accompany the report. Those plants with more than one Certified Operator have designated one as the "chief" operator, and his name will appear on this report. Any of the other Certified Operators may sign this form without written explanation.

7.



FOLD HERE THIRD

PLACE
FIRST CLASS
STAMP HERE

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
COMPREHENSIVE STUDIES SECTION
STEVENS T. MASON BUILDING
LANSING, MICHIGAN 48926

FOLD HERE FIRST

FOLD HERE SECOND

Any written comments concerning your report may be recorded on the back of the form. The form can then be folded and mailed to our Lansing Office.

This form must be mailed by the 2nd calendar day of the month following the month covered by the report. The report for May must be mailed by June 2. The only exception to this will be in cases where there is a lag time between the sampling date and when results of analysis are available, for example 5-day BOD. In those cases where a lag is absolutely necessary, the form must be mailed no later than the 5th calendar day of the month.

MONTHLY REPORT OF FIELD SURVEY (EXHIBIT 59)

This document is used to report a field survey. The survey will be presented on the report and on the same line of information indicated by:

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
	Record Code	A 3 entered in column (2) indicates to the computer that the data submitted is associated with field surveys.
63	Station Number (3-8)	If this is the only number that appears, the month and year will print on the same line as the organization name provided a 6 is entered in column (1).
73	Outfall	A 7 entered in column (1) will associate the survey with the data appearing on the report line on which the outfall name is printed.
83	Parameter	An 8 entered in column (1) will associate the survey with the data appearing on the report line on which the parameter is shown. In this instance, however, the parameter code number must be shown in addition to the station number and/or order number.
	MWRC Order (9-13)	This number need not be recorded unless there is more than one Commission Order outstanding.
	Parameter (14-18)	Enter the parameter code to which the survey is applicable.
	Date (43-46)	Month and year of the survey. Because this information would be identical for all entries submitted that month, it is entered only once unless late information is being submitted.

EXHIBIT 59

START →

INDUSTRIAL SURVEY	
COMPREHENSIVE STUDIES	
DATA UNIT	
KEY PUNCH	
COMPREHENSIVE STUDIES	

MONTHLY REPORT OF FIELD SURVEY

PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

		1 — 6	76 — 80	17 — 21	58 — 60		← REPORT LOCATION
RECORD STATION NUMBER AND INDICATE NATURE OF SURVEY. SUBMIT PROMPTLY MONTHLY.						SCHEDULE: Submit on 1st day of month	
		STATION NUMBER	ORDER OR ACTION NUMBER	STORET PARAMETER NAME OR NUMBER	DATE		STATION NAME OR REMARKS
					MONTH - YR	DAY	
1 —	2	3 — 8	9 — 13	14 — 18	43 — 46		← PUNCH
	3						
	3						
	3						
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	3						
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	3						

↑ DESCRIBE NATURE OF FIELD SURVEY IN COLUMN 1

6 - SURVEY OF ORGANIZATION
7 - SURVEY OF A SPECIFIC OUTFALL
8 - SURVEY IN CONNECTION WITH INDICATED POLLUTANT PARAMETER

DO NOT PUNCH DAY OF SURVEY INTO CARD

DISTRICT FIELD VISITS (EXHIBIT 60)

This document is used by MWRC personnel to report that a field visit was made to the organization.

As with the field survey, the field visit may be associated with a particular outfall and/or parameter code number.

Code 2 entered in column 2 of all records indicates to the computer that the information submitted is associated with a field visit.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
62	Station Number (3-8)	If station number is the only entry to the line, the month and year of the visit will print on the same line as the organization provided that a 6 is entered in column 1.
72	Outfall	If the field visit should be associated on the report line with the specific outfall, enter a 7 in column 1.
82	Parameter (14-18)	If the field visit was in connection with a specific parameter, an 8 entered in column 1 will associate the month and year with the report line on which the indicated parameter number appears.
	Order (9-13)	This number need not be recorded unless there is more than one Commission Order outstanding.
	Parameter (14-18)	If applicable, enter the parameter code number with which the field visit is to be associated.
	Date (43-46)	Month and year of the visit. Because information would be identical for all entries submitted that month, it is entered only once unless late information is being submitted.

EXHIBIT 60

START →

DISTRICT	
COMPREHENSIVE STUDIES	
DATA UNIT	
KEY PUNCH	
COMPREHENSIVE STUDIES	

DISTRICT FIELD VISITS

MONTHLY PERFORMANCE REPORT
MICHIGAN WATER RESOURCES COMMISSION

		1 — 6	76 — 80	17 — 21	62 — 64		← REPORT LOCATION
		RECORD STATION NUMBER AND INDICATE NATURE OF VISIT SUBMIT TO REGIONAL OFFICE PROMPTLY AT END OF MONTH					SIGNED: ____________ MONTH OF ____________
		PRIMARY STATION NUMBER	MWRC ORDER OR ACTION NUMBER	STORET PARAMETER NAME OR NUMBER	DATE		COMPANY NAME OR REMARKS
					MONTH — YR	DAY	
1 - 2		3 — 8	9 — 13	14 — 18	43 — 46		← PUNCH
	2						
	2						
	2						
	2						
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	2						
	2						
	2						

▲ DESCRIBE NATURE OF FIELD VISIT IN COLUMN 1

DO NOT PUNCH DAY OF VISIT INTO CARD

1 - VISIT TO ORGANIZATION
2 - VISIT TO A SPECIFIC OUTFALL
3 - VISIT IN CONNECTION WITH INDICATED POLLUTANT PARAMETER

ANNUAL RATINGS AND TAX EXEMPTION STATUS (EXHIBIT 61)

Although this document is exhibited as a manually-prepared document, it is recommended that a punched-card output be obtained from the computer. One card would be obtained for each applicable organization, outfall, and parameter code. The cards prepared (punched-out) by the computer would be interpreted and submitted to the District Engineer along with a listing of those cards. The annual rating would be a one-character entry made by the Regional Engineer directly on the card. After punching that character into the card, the card would be used as input to update the Monthly Operating Report with the annual rating.

Similarly, the tax exemption status is a one-character entry to the card. The form, however, may be used during the operating year to record changes in the organization's tax exemption status.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
68 78 88	Record Code (1)	A 6, 7, or 8 indicates that the data presented is to be associated with an organization, an outfall, or parameter code, respectively.
	Record Code (2)	An 8 in column 2 indicates the information is associated with Annual Ratings and/or Tax Exemption status of an organization.
	Station Number (3-8)	Six-digit station number assigned to the organization and outfall.
	MWRC Order Number (9-13)	May be shown if there is more than one order number outstanding for the same organization (or outfall). Otherwise, it need not be shown.
	Parameter (14-18)	Enter the parameter code for which the information applies.
	Month-Year (43-46)	Although only the year will be displayed on the annual report, the month is recorded to maintain continuity with preparation of other data.
	Annual Rating (47)	Enter the applicable rating. Ratings for more than one year may be submitted provided separate documents are prepared.
	Tax Exemption (48)	The tax exemption status may be shown in this column. The information may be submitted any time during the year.

EXHIBIT 61

ANNUAL RATINGS AND TAX EXEMPTION STATUS

COMPREHENSIVE STUDIES	
DATA UNIT	
KEY PUNCH	
COMPREHENSIVE STUDIES	

PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

	1 —— 6	76 —— 80	17 —— 21		66	72	◄—— REPORT LOCATION
RECORD STATION NUMBER, ANNUAL RATING AND CURRENT TAX EXEMPTION STATUS.							
	PRIMARY STATION NUMBER	MWRC ORDER OR ACTION NUMBER	STORET PARAMETER NAME OR NUMBER	DATE MONTH - YR	TAX	AR	COMPANY NAME OR REMARKS
1-2	3 8	9 13	14 18	43 46	47	48	◄—— PUNCH
8							
8							
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8							

▲
6 - ORGANIZATION RATING
7 - OUTFALL RATING
8 - PARAMETER RATING

TAX EXEMPTION STATUS ▲

NONE IN EFFECT, ELIGIBILITY NOT KNOWN - N
ELIGIBLE AND IN EFFECT - - - - Y
ELIGIBLE BUT RESCINDED - - - - R

▲ ANNUAL RATING

A,B,C,D, or E

MONTHLY REPORT OF COMMISSION ACTION (EXHIBIT 62)

This form is used to submit the actions of the Commission as they relate to a particular organization.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
64 74 84	Record Code (4)	The information may be associated with an organization, outfall, or parameter by entry of 6, 7, or 8, respectively to the first column.
	Station Number (3-8)	Enter the station number that identifies the particular organization and outfall.
	MWRC Order Number (9-13)	Enter the order number. If it is a new file being forwarded to the field for more information, show the order number as an alphabetic character followed by four numbers. This separates one request for additional information from another.
	Parameter (14-18)	If the order number is associated with a particular pollutant, indicate in this column by showing the applicable STORET parameter code.
	Date (43-46)	This is a monthly report, so month and year would be identical for all entries made in the same month.
	Status (47)	Enter R to show a file has been initiated and additional information has been requested from field personnel. Enter C when the file has been given to the Commission for action, showing the date of submission. This date will be constant until a final order is issued when the date of such an order will be entered.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
	Status (47)	Enter S when a show-cause hearing is scheduled. Enter H when hearing is before commissioner. Enter D when file has been declared in default of order or stipulation.
	Type	Seven codes are used to indicate the type of action a particular order is receiving: S - Routine notice of statutory hearing has been forwarded to affected parties. O - The order has been deemed to be a matter of public interest, and interested or affected parties have been advised of the date of the hearing. V - The organization has made a voluntary stipulation in which they agree to comply with the order as prepared by the MWRC. D - The Commission has issued an Order of Determination requiring compliance by the affected organization. F - When all administrative hearings have been exhausted, the Commission issues a Final Order as of a specific date. The organization may choose to comply or to seek relief through judicial proceedings. R - Action has been recessed. A - A Final Order or stipulation has been authorized.

EXHIBIT 62

MONTHLY REPORT OF COMMISSION ACTION

PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

START ►

ADMINISTRATION	
COMPREHENSIVE STUDIES	
DATA UNIT	
KEY PUNCH	
COMPREHENSIVE STUDIES	

	1 —— 6	76 —— 80	17 —— 21	▨	82 —— 86		74	88	◄—— REPORT LOCATION
REC CODE	PRIMARY STATION NUMBER	MWRC ORDER OR ACTION NUMBER	STORET PARAMETER NAME OR NUMBER	▨	DATE		STATUS	TYPE	COMPANY NAME OR REMARKS
				▨	MO	YR.			
1 — 2	3 —— 8	9 —— 13	14 —— 18	42	43 ——			48	◄— PUNCH
4				▨					
4				▨					
4				▨					
4				▨					
4				▨					
4				▨					
4				▨					
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4				▨					
4				▨					
4				▨					
1 — 2	3 —— 8	9 —— 13	14 —— 18	42	43 ——			48	

PUNCH COLS ►

6 - ORGANIZATION
7 - OUTFALL
8 - PARAMETER

STAFF INVESTIGATING AND PREPARING ACTION=R
HEARING BEFORE HEARING COMMISSIONER=H
PRIOR TO ORDER
ACTION HAS BEEN APPROVED BY WRC=C
A SHOW CAUSE HEARING IS SCHEDULED=S
DECLARED IN DEFAULT OF ORDER OR STIPULATION=D

S=NOTICE OF DETERMINATION ISSUED
& STATUTORY HEARING SCHEDULED
O=AN OPEN PUBLIC HEARING HAS
BEEN SCHEDULED
R=ACTION HAS BEEN RECESSED
A=A FINAL ORDER OR STIPULATION
HAS BEEN AUTHORIZED
D=ORDER OF DETERMINATION ADOPTED
V=VOLUNTARY STIPULATION SIGNED
F=FINAL OR[illegible] ADOPTED

MONTHLY REPORT OF JUDICIAL PROCEEDINGS (EXHIBIT 63)

This form is used to enter judicial proceedings.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
65 75 85	Record Code (1)	Record level of interest to which information is applicable by entering 6, 7, or 8 for organization, outfall or parameter, respectively.
	Record Code (2)	A 5 always appears in this column indicating to the computer that the information pertains to legal or judicial proceedings.
	Station Number Order Number Parameter	Same as in Exhibit 62 description.
	Date (43-46)	Month and year in which the Commission received notice of the action. (Note that use of the date differs from that used in association with Commission Actions.)
	Who (47)	Indicate which legal office is representing MWRC: P - Local prosecutor. A - State Attorney General.
	Type of Action (48)	Indicate what kind of action has been initiated: P - Petition court for trial date. T - Date for trial has been established by the court. A - Organization has appealed the trial verdict. See Exhibit 63 for additional codes.

EXHIBIT 63

MONTHLY REPORT OF JUDICIAL PROCEEDINGS

PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

START ►

ADMINISTRATION	
COMPREHENSIVE STUDIES	
DATA UNIT	
KEY PUNCH	
COMPREHENSIVE STUDIES	

	1 — 6	76 — 80	17 — 21	▨	124 — 128		130	131	← REPORT LOCATION
REC CODE	PRIMARY STATION NUMBER	MWRC ORDER OR ACTION NUMBER	STORET PARAMETER NAME OR NUMBER	▨	DATE		WHO	WHAT	COMPANY NAME OR REMARKS
				▨	MO	YR			
1 — 2	3 — 8	9 — 13	14 — 18	42	43 — 46		47	48	← PUNCH
5				▨					
5				▨					
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5				▨					
PUNCH COLS ► 1 — 2	3 — 8	9 — 13	14 — 18	42	43 — 46		47	48	

▲
6-ORGANIZATION
7-OUTFALL
8-PARAMETER

ENTER APPLICABLE INFORMATION

SHOW DATE OF MOST RECENT ACTION

MWRC REPRESENTED BY ▲
STATE OF MICHIGAN, ATTORNEY GEN-A
LOCAL PROSECUTOR-P

▲
A-ORGANIZATION HAS APPEALED COURT VERDICT
C-DECISION FOR MWRC
D-DECISION FOR DEFENDENT
H-HOLD ACTION
I-INJUNCTION ISSUED
N-NEGOTIATING JUDGEMENT
P-PETITION THE COURT FOR A HEARING
R-REFERRED TO ATTORNEY GENERAL
S-SUIT FILED
T-DATE FOR TRIAL ASSIGNED BY COURT
W-CASE WITHDRAWN

MONTHLY REPORT OF PERFORMANCE SCHEDULED (EXHIBIT 64)

This document is prepared monthly to record construction schedule dates applicable to an organization, its outfall and/or parameter. Columns 1-18 are completed the same as other monthly reports. The use of column 42 and manipulation of dates, however, varies.

RECORD CODE COLUMN 1-2	TITLE	DESCRIPTION
66 76 86	Type of Action (42)	The construction dates are described by the type of action that generated them: C - Original Commission Order. M - Modified Commission Order (modified by Commission). J - Commission Order confirmed (or modified by court order).
	Dates (43-58)	Four scheduled dates may be submitted showing month and year for each: (1) Construction Plans - Preliminary (2) Construction Plans - Final (3) Construction - Start (4) Construction - Finish The computer will compare the current month and year with the scheduled month and year to print xxx in the actual completion column of the report unless the completion date has already been submitted. (This xxx signifies that a construction due date occurs in the next month.) In the month in which the completion was to have been recorded, the computer will print N indicating that the phase indicated has not been completed. When an actual date is submitted, it will supplement either the xxx or the N by showing the month and year of completion.

EXHIBIT 64

START →	
ENFORCEMENT	
COMPREHENSIVE STUDIES	
DATA UNIT	
KEY PUNCH	
COMPREHENSIVE STUDIES	

MONTHLY REPORT OF PERFORMANCE SCHEDULED

PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

	1 — 6	76 — 80	17 — 21	90	92 — 94		100 — 102		108 — 110		116 — 118		← REPORT LOCATION
REC CODE	PRIMARY STATION NUMBER	MWRC ORDER OR ACTION NUMBER	STORET PARAMETER NAME OR NUMBER	ACTION	SCHEDULED PERFORMANCE DUE DATES								COMPANY NAME OR REMARKS
					PLANS				CONSTRUCTION				
					PRELIM		FINAL		START		FINISH		
					MO	YR	MO	YR	MO	YR	MO	YR	
1 — 2	3 — 8	9 — 13	14 — 18	42	43 — 58								← PUNCH
6													
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6													
6													
1 — 2	3 — 8	9 — 13	14 — 18	42	43 — 58								

PUNCH COLS →

ENTER APPLICABLE DATES
AS THEY BECOME AVAILABLE

▲
6-ORGANIZATION
7-OUTFALL
8-PARAMETER

▲
C-ORIGINAL MWRC ACTION HAS ESTABLISHED DATES SHOWN
M-MWRC ACTION HAS MODIFIED ORIGINAL DATES TO THOSE SHOWN
J-COURT ORDER HAS MODIFIED MWRC DATES TO THOSE SHOWN

MONTHLY REPORT OF PERFORMANCE COMPLETED (EXHIBIT 65)

An MWRC order contains specifications for the quality of water that is discharged by an organization. To meet the standards, an organization may be required to construct facilities ranging from modest expansion of existing operations to major construction. Whatever the extent of the construction required, provision is made to examine activity in terms of four dates for submission of:

Preliminary Plans

To ensure that the facilities contemplated will meet MWRC specifications.

Final Plans

A final review by MWRC before construction is started.

Construction Start

The date scheduled for construction to begin should comply with the date established by order of the MWRC.

Construction Finish

This date matches the completion date established by the MWRC.

COMPUTER PROGRAM ANALYSIS

The computer is programmed to examine each of the four scheduled dates on the "Monthly Report of Performance Scheduled" and compare them with the date submitted on the "Monthly Report of Performance Completed." The following symbols will print and indicate:

xxx - The scheduled date will occur in the following month.
N - Indicates the scheduled dates lapsed, no completion dates submitted.
129 - (December, 1969) Indicates actual month and year. This date may or may not comply with the scheduled date.

Performance completed may be submitted on a form identical to the form used for reporting Performance Scheduled.

The 7 recorded in column (2) identifies construction completed; the 6 identifies construction scheduled.

EXHIBIT 65

START ►

ENFORCEMENT	
COMPREHENSIVE STUDIES	
DATA UNIT	
KEY PUNCH	
COMPREHENSIVE STUDIES	

MONTHLY REPORT OF PERFORMANCE COMPLETED

PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

	1 — 6	76 — 80	17 — 21		96 — 98		104 — 106		112 — 114		120 — 122		← REPORT LOCATION
REC CODE	PRIMARY STATION NUMBER	MWRC ORDER OR ACTION NUMBER	STORET PARAMETER NAME OR NUMBER	BLANK	PERFORMANCE DATES COMPLETED								COMPANY NAME OR REMARKS
					PLANS				CONSTRUCTION				
					PRELIM.		FINAL		START		FINISH		
					MO	YR.	MO.	YR.	MO	YR.	MO.	YR.	
1 — 2	3 — 8	9 — 13	14 — 18	42	43 — 58								← PUNCH
7													
7													
7													
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7													
1 — 2	3 — 8	9 — 13	14 — 18	42	43 — 58								

PUNCH COLS ►

▲
6-ORGANIZATION
7-OUTFALL
8-PARAMETER

ENTER APPLICABLE DATES AS THEY BECOME AVAILABLE

REPORT TITLES (EXHIBIT 66)

This document is prepared as often as necessary to update the computer files with new names of:

- Regional MWRC Offices.
- District Engineers' Offices.
- River Basins.

CERTIFIED WASTE TREATMENT PLANT OPERATORS (EXHIBIT 67)

This document is prepared to update and change the Certified Operator's file.

COLUMNS	TITLE	DESCRIPTION
1-6	Primary Station Number	Number assigned to the treatment plant.
7	Code	
8-17	Certificate Number	Registered number for individual Certified Operator.
18-26	Social Security Number	Certified Operator's number.
27-30	Certification Date	Date that this Operator was accepted and certified.
31-66	Certified Operator Name	Operator's name.
67-80	Not used	Blank.

MASTER FILE CHANGES (EXHIBITS 68, 69, and 70)

For large numbers of identical changes to the PAR master file, three input forms are used. The forms duplicate specific lines on the New Station Set-up Sheet (Exhibit 32). The advantage of using these forms is the capability of processing many changes with very few forms.

- Organization and Outfall Description Card (Exhibit 68) applies to cards 61 and 70.
- Address Correction Card (Exhibit 69) applies to cards 10, 11, 20 and 21.
- River Basin and Organization Card (Exhibit 70) applies to card 60.

EXHIBIT 66

REPORT TITLES

PERFORMANCE AND ACTION REPORT
MICHIGAN WATER RESOURCES COMMISSION

START		
→	COMPREHENSIVE STUDIES	
	DATA UNIT	
	KEY PUNCH	
	COMPREHENSIVE STUDIES	

REC. CODE	M.W.R.C.		RIVER BASIN	REPORT TITLES (34 CHARACTERS)
	REG	DIST		
1—2	9	20-21	22 —— 28	42 —— 75
0				
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1—2	19	20-21	22 —— 28	42 —— 75

▲ NAMES
3-REGION
4-DISTRICT
5-RIVER BASIN

INSTRUCTIONS: PRECEDE EACH RIVER BASIN NAME WITH THE APPLICABLE REGION AND DISTRICT NAME.

CERTIFIED WASTE TREATMENT PLANT OPERATORS

PRIMARY STATION NUMBER	CODE	CERTIFICATE NUMBER	SOCIAL SECURITY NUMBER	CERT DATE	CERTIFIED OPERATOR NAME	NOT USED
1 2 3 4 5 6	7	8 9 10 11 12 13 14 15 16 17	18 19 20 21 22 23 24 25 26	27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66	67 68 69 70 71 72 73 74 75 76 77 78 79 80

EXHIBIT 67

EXHIBIT 68

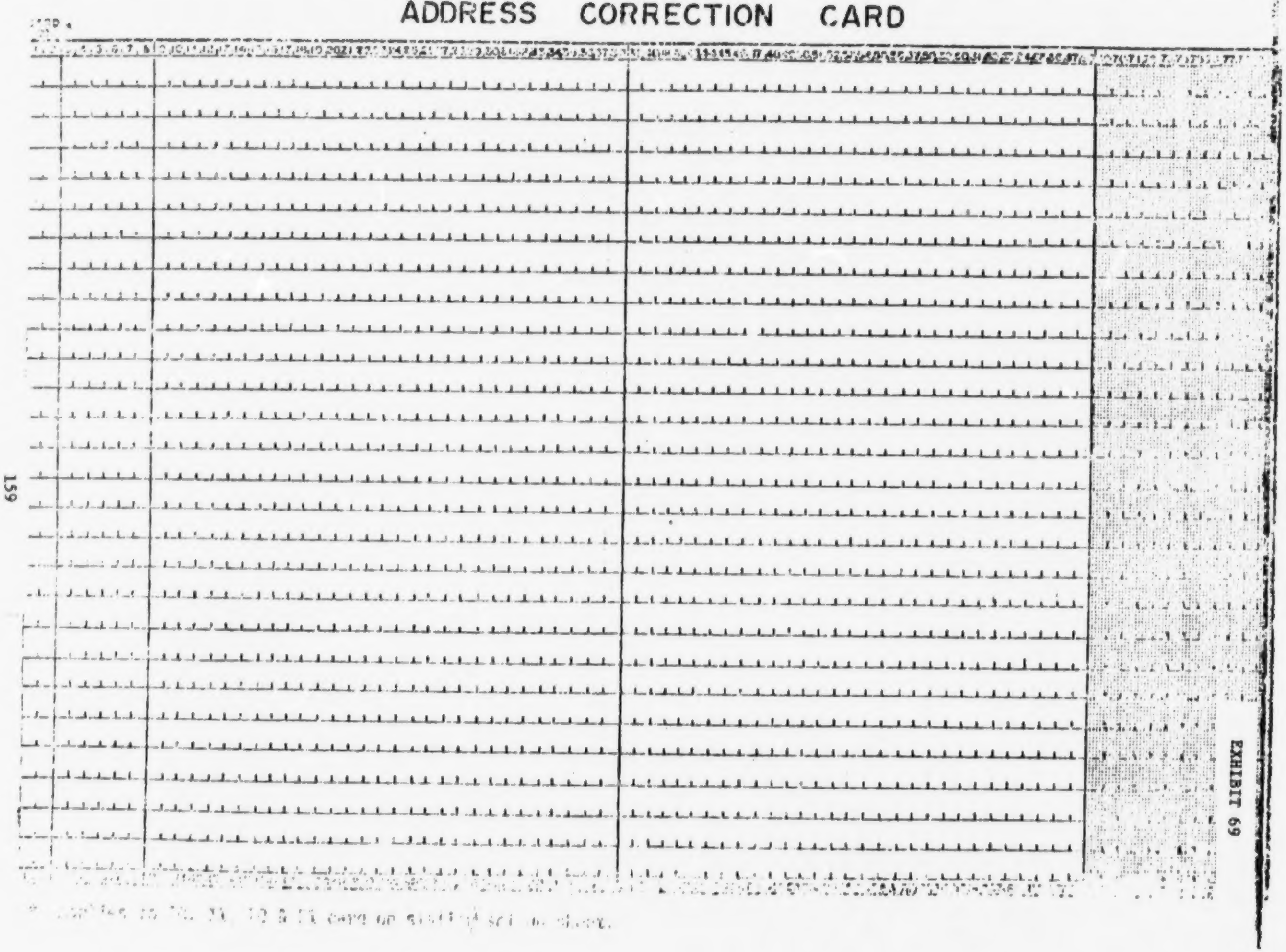
ORGANIZATION AND OUTFALL DESCRIPTION CARD

CARD NO *

* Applies to 61 and 70 card on station set-up sheet.

EXHIBIT 69

ADDRESS CORRECTION CARD



RIVER BASIN AND ORGANIZATION CARD

CARD NO.		[redacted]	↓	REGION	RIVER BASIN			O	TYPE		ORGAN. NUMBER	PT	ORGANIZATION NAME TO APPEAR ON REPORT	DATE	
				DIS	MAJ	MIN	TERM		P	USE				MO	YR
1,2	3,4,5,6,7,8	9,10,11,12,13,14,15,16,17,18													
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1,2	3,4,5,6,7,8	9,10,11,12,13,14,15,16,17,18													

EXHIBIT 70

SECTION IX

ACKNOWLEDGMENTS

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